The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2575.—VOL. LIV. LONDON, SATURDAY, DECEMBER 27, 1884. [WITH SUPPLEMENT.] {PRICE ..... SIXPENCE. BY POST, £1 4s. PER ANNUM

MR. JAMES H. CROFTS, STOCK AND SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING STOCKS and SHARES (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in STOCKS and SHARES not having a general market value

Every Friday a GENERAL and RELIABLE LIST issued (a copy of which will be forwarded on application), containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, London—SOUTH CORNWALL BANK, St. Austell.
TELEPHONE NUMBER 1003.

SPECIAL DEALINGS in the following (or part):—

80 Asia Minor, 17s. 6d. paid, 3s. 6d.
150 Akankoo, f.pd., 5s.
100 Almada, 1s. 6d.
100 Bedford United, 24s.
200 Balkis, 3s. 3d.
50 Bratsberg, 20s.
250 Cankim Bamoo, 1s 3d
50 Carn Camborne.
100 Callao Bis, 13s. 6d.
200 Chile Gold (New), 7s. 3d.
100 Colombian Hydraulic 12s. 6d.
50 Consolidated, 2s.
100 California, 5s 6d.
50 Colorado, £2 6s.
50 Canada Copper, 5s. 6
100 Chontales, 3s. 3d.
175 Cor. South Australian Copper, 2s
175 Contacovil, 1s. 3d.
200 Denver, 1s. 9d.
100 Devala Moyar, 5s. 6d.
20 Devon Con., £1 13s. 9
200 Devon Friend., 2s.
2 Dolcoath, £69.
50 Don Pedro, 6s.
100 Drakewalls, 2s. 6d.
50 Duchy Peru, 15s.
50 East Blue Hills, 9s.
150 Eberhardt, 3s.
50 East Lovell, off. wtd.
100 East Wh. Rose, 7s.
25 Ecton, £1 15s.
4 El Callao, £69.
100 Frontino, 9s 9d.
100 Goginan, 1s. 6d.
100 Gold Coast, 3s 9d.
200 Glenrock, 2s. 6d.
35 Great Holway, 14s.
15 Great Laxey, £9¾.
100 Guinea Coast Gold.
25 Gunnislake (Clitters), 7s. 6d.
100 Hoover Hill, 4s. 9d.
50 Home Mines Trust, 17s. 6d.
200 Indian Consoll., 2s. 9
100 Javali, 4s.
100 Kapanga, 1s.
20 Killifreth, 17s. 6d.
20 Kimberley No. Block.
100 Kohinoor B, 3s. 3d.
50 Kongsberg.
100 La Plata (New), 5s. 6
25 La Trinidad, 7s. 6d. premium.
50 Leadhills, 26s.
100 Lisbon-Berlyn, 8s. 3d.
25 Marke Valley, 3s. 9d.
25 Mason & Barry, £3 3 9
25 Mona, offer wanted.
50 Montana, 13s. 3d.
100 Mounts Bay, 2s. 6d.
50 Mysore Gold, 26s.
50 New Caradon.
100 New Callao.
100 New Emma, 12s.
100 New Kitty, 26s.
200 Nouveau Monde, 2s 6
100 New W. Caradon, 2s 3
100 Nundydroog, 8s.
50 Old Shepherds, 11s.
100 Ooregum.
50 Organos, 12s.
50 Orita.
100 Oscar, 15s paid, 18s. 6
100 Oscar Vendors', 21s.
20 Polberro, £2 3s. 9d.
100 Potosi (New), 17s. 6d.
100 Port Phillip, 2s. 3d.
100 Parys Copper, 1s. 6d
20 Phœnix United, 25s.
30 Panulcillo, £2 16s. 3d
50 Prince of Wales, 5s. 6
200 Pestarena, 1s. 6d.
10 Rio Tinto, £12 11s. 3
100 Ruby (old).
50 Do. (new).
15 Richmond, £3 16s 3d
10 Roman Grav., £3 2s 6
20 Schwab's Gully, £5¾.
100 Spitzkop, 12s. 6d.
80 South Caradon, 9s. 6d
20 So. Condurrow, £8¼.
100 South Darren, 5s.
50 South Penstruthal.
100 Tacquah, 1s. 9d.
100 Tambraciierry, 6s 3d.
20 Tolima A, £5½.
20 ditto B, £4¾.
100 Transvaal Gold, 11s.
100 Tregontrees, 3s. 6d.
100 Tresavean, 8s. 6d.
20 Trevaunance, £2 3s, 9
25 Untd. Mexican.
50 Van, 11s. 6d.
50 Victoria Gold, 10s.
10 Wheal Agar, £17½.
10 Wheal Basset, £2¼.
100 West Callao, 3s. 9d.
20 West Phœnix, 6s. 6d.
50 West Caradon, 1s. 6d.
50 West Crebor, 2s. 6d.
50 West Polbreen, 12s.
10 West Kitty, £8 7s. 6d
100 Wheal Coates, 2s. 6d.
20 Wheal Crebor, 18s.
25 Wheal Kitty, 15s.
25 Wheal Silver & Lantegios.
150 Wynaad Persev., 2s.

. SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

. BUSINESS at CLOSE PRICES in all Market TIN, COPPER, LEAD, GOLD, SILVER, and DIAMOND SHARES

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS — SPECIAL BUSINESS.— Fortnightly Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS — SPECIAL BUSINESS. — Fortnightly Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

AMERICAN AND CANADIAN STOCKS AND SHARES—SPECIAL BUSINESS.
Fortnightly Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

OPTIONS in all STOCKS and SHARES dealt in.—
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

GOLD AND SILVER MINES.—SPECIAL BUSINESS in ALL marketable INDIAN GOLD SHARES, and in Colombian Hydraulic, California, Callao "Bis," El Callao, Gold Coast, Guinea Gold Coast, Kongsberg, New Callao, Oscar, West Callao, Tolima A, Tolima B, La Plata, Rio Tinto, Frontino and Bolivia, Potosi, Chile, Nouveau Monde, Ruby, Richmond, Victoria.

. SHARES IN THE ABOVE SOLD FOR FORWARD DELIVERY ONE, TWO, OR THREE MONTHS ON DEPOSIT OF TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS SHARES of all DESCRIPTIONS BOUGHT or SOLD—SPECIAL BUSINESS:—Aërated Bread, Aylesbury Dairy, Brighton Aquarium, General Credit, Hudson's Bay, Native Guano, Suez Canal, Westminster Aquarium, and Hotel Shares.
SHARES SOLD for FORWARD DELIVERY, ONE, TWO, or THREE MONTHS, on DEPOSIT of TWENTY PER CENT.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

LA TRINIDAD.—FOR SALE, ONE HUNDRED SHARES (£5 fully paid) at £5 7s. 6d. net for three months' forward delivery on deposit of 20 per cent.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

TRANSVAAL GOLD AND SOUTH AFRICAN DIAMOND FIELDS. SPECIAL BUSINESS in all Transvaal Shares, including BALKIS, GRASKOP No. 1, GRASKOP No. 2, LISBON-BERLYN, TRANSVAAL, SPITZKOP, SCHWAB'S GULLY, KIMBERLEY NORTH BLOCK, and KIMBERLEY CENTRAL.

. SHARES IN THE ABOVE SOLD FOR FORWARD DELIVERY ON DEPOSIT OF TWENTY PER CENT.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

THOS. ELS AND CO., STOCK AND SHARE DEALERS,
6, BOND COURT, WALBROOK, LONDON, E.C.

Business transacted in all Stock Exchange Securities, Foreign Stocks, Railways, Mines, and Miscellaneous Shares.

THOS. ELS and Co. have Special Business in the following Mine Shares —

Balkis.	Home Mines.	Orita.
California.	La Plata.	Oscar.
Colombian Hydraulic.	Lisbon-Berlyn.	Ooregum.
Colorado.	Mysore Gold.	Potosi.
Devon Consols.	North Tolima.	Ruby.
Ecton.	Nundydroog.	Schwab's Gully.
Glenrock.	Old Shepherds.	Victoria.
	Organos.	

THOS. ELS and Co. have large orders both as buyers and sellers of Organos and Orita shares, and are in a position to do business on the best terms. They have also special business in Schwab's Gully and Colorado.

Our December Circular touching upon Mines in the United States of Colombia, including Colombian Hydraulic, Organos, Orita, Tolima, and North Tolima, Mines in the Transvaal, including Lisbon and Berlyn and Balkis, and upon Indian Gold Mines, including Glenrock, Mysore, Nundydroog, Ooregum, and Wynaad Perseverance, is now ready; post free on application.

BRITISH AND FOREIGN MINING OFFICES.

MESSRS. PETER WATSON AND CO.,
18, AUSTIN FRIARS,
OLD BROAD STREET, LONDON, E.C.

BANKERS: THE ALLIANCE BANK (Limited).

MESSRS. PETER WATSON AND CO.'S BRITISH AND FOREIGN MONTHLY MINING NEWS—STOCK AND SHARE INVESTMENT NOTES—MINES, MINERALS, AND METAL MARKETS—SHARE LIST, No. 866, VOL. XVII., for DECEMBER month, is ready, and will be sent to customers on application.

Annual Subscription..... 5s. | Single Copy..... 6d

MR. ALFRED E. COOKE,
BRITISH AND FOREIGN STOCK AND SHARE DEALER,
9, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.
(Opposite the Stock Exchange, with which his offices are in DIRECT TELEGRAPHIC COMMUNICATION.)
TELEPHONE No. 1268.

SPECIAL NOTICE.

LIST OF SHARES ON SALE will re-appear next week. In the meantime, all orders will be executed at CLOSEST MARKET PRICES.

FORWARD DELIVERY. | SPECIAL TERMS.
LARGE PROFITS. | Apply for List issued by ALFRED E. COOKE.
Daily and Weekly Lists of Prices issued to clients on application.
ADVANCES MADE ON STOCKS AND SHARES.
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MR. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1851.
BANKERS: LONDON AND WESTMINSTER.

JOHN RISLEY, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
38, CORNHILL, LONDON, E.C.
ESTABLISHED 1860.

BANKERS: LONDON and WESTMINSTER, Lothbury, E.C.

CHARLES J. SIMS, STOCK AND SHARE DEALER,
3, UNION COURT, OLD BROAD STREET, LONDON, E.C.

ESTABLISHED 1866.—THIRTEEN YEARS IN CORNWALL.

SAMUEL JAMES, STOCK BROKER AND MINING SHARE DEALER, 14, ANGEL COURT, LONDON, E.C.
Member of the Redruth Mining Exchange.

Those who wish to buy or sell any mining shares should consult Mr. JAMES. Mr. J. devotes his entire attention to home and foreign mines, and places his special information at the disposal of his clients. That mining offers undoubted advantages for quick returns no one can deny. Look at the enormous sums of money paid in dividends by home and foreign mines. A large number of wealthy families owe their present proud positions to adventuring in LEGITIMATE MINES. With a better price for metals many of the smaller priced shares would immediately advance some hundreds per cent.

VICTORIA also OSCAR GOLD SHOULD BE BOUGHT AT ONCE.

There are many mines worth attention, as proceedings of recent shares holders' meetings prove beyond doubt. During the last 40 years there has no such opportunity presented itself as the present for investment in British mines. Metals are certain to advance. In well-informed circles no doubt is entertained on this point. Buyers must not further delay orders.
See Selected List published by S. JAMES, 14, Angel-court, London, E.C.

SPECIAL BUSINESS in the following or part:—

25 Bedford United, 24s
20 Carn Camborne, 3s. 6
50 Collacombe Con., 2s 6
25 Devon Con., £1 15s.
80 D. Friendship, 2s.
50 Drakewalls, 2s. 6d.
55 East Blue Hills, 8s. 9
50 Ecton, 33s.
100 East Wh. Rose, 7s.
15 Frongoch, 8s. 9d.
100 Goginan, 1s. 6d.
10 Great Laxey, £9¼.
50 Gunnislake (Clit.) 7s 6
20 Great Holway, 13s. 9
50 Home Mines Trust, 17s. 9d.
50 Killifreth, 18s. 6d.
100 Kit Hill Gt. Cons., 6d
10 Kitty St. Agnes, 15s
50 Mounts Bay, 2s. 9d.
15 New Kitty, 26s. 3d.
100 New Wh. Caradon, 2s 9
100 Old Shepherds, 11s.
20 Phœnix United, 26s 3
20 Polberro, 44s. 6d.
20 Prince of Wales, 5s.
50 Parys Copper, 1s.
20 Roman Gravels, 65s.
100 South Caradon, 12s. 6
3 S. Condurrow, £8¼.
40 South Darren, 5s.
10 South Frances, £6.
50 Tresavean, 6s. 6d.
20 Trevaunance, 45s.
50 West Crebor, 2s. 6d.
12 West Kitty, £8 6s. 3d
25 West Poldice, 4s. 6d.
10 Wheal Basset, £2¼.
25 Wheal Crebor, 20s.
50 Asia Minor, 3s. 6d.
75 Akankoo (f.p.), 4s. 9d.
200 Balkis, 3s. 3d.
25 Bratsberg, 22s.
27 Cartago, 12s 6 pd., 6s 6
100 Cartago, fully paid, 10s. 6d.
100 Cankim Bamoo, 1s. 6
10 Copiapo, £2¼.
100 California Gold, 5s. 6d
100 Callao Bis, 12s. 9d.
100 Chile (New), 1s. paid, 7s.
50 Chontales, 2s. 9d.
100 Colombian Hyd., 13s.
100 C. Sth. Austr. Cop., 2s
100 Denver Gold, 2s.
50 Frontino, 10s. 6d.
50 Glenrock, 2s. 6d.
55 Gold Coast, 3s. 9d.
30 Hoover Hill, 4s. 9d.
100 Indian Consol., 2s. 6d
20 Javali, 4s.
100 Kohinoor B, 3s. 3d.
100 Kongsberg Silver.
150 Kapanga, 9d.
40 La Plata, 5s. 6d.
100 Last Chance, 1s.
100 Lisbon-Berlyn, 8s. 6d.
50 Montana, 13s. 9d.
50 Mysore Gold, 26s.
20 New Emma, 12s. 6d.
100 Nouveau Monde, 2s. 6
100 Nundydroog, 8s. 9d.
50 Nine Reefs, fully paid, 4s. 6d.
50 Oscar Gold, 15s. paid, 18s. 6d.
50 Oscar Gold, Vendors' Shares, 20s.
20 Organos, 14s.
20 Orita, 32s. 6d.
18 Potosi, New, 18s.
100 Port Phillip, 2s. 3d.
10 Panulcillo, £2¾.
50 Ruby, 6s. 3d.
20 Richmond, £3 15s.
25 Rio Tinto, £12 15s.
10 Schwab's Gully, £5¾
40 Spitzkop, 12s. 6d.
100 Tacquah, 1s. 9d.
50 Tocopilla, 2s. 6d.
11 Tolima A, £5½.
50 Transvaal Gold, 13s.
20 U. Mexican, £3 15s.
50 Victoria Gold, 10s.
100 West Callao, 3s. 6d.

. S. JAMES can buy or sell any of the above shares. Correspondence invited. Trustees, executors, and others will find their duties considerably lightened by submitting schedule of shares held to Mr. JAMES, who will return the same by next post with market values attached.

Orders by letter or telegram promptly attended to. Speculative accounts no opened on any terms whatever. Send for selected list of Mines. CLOSING PRICES issued every Tuesday and Friday.
TELEPHONE No. 212.
BANKERS: IMPERIAL BANK, Lothbury, E.C.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 30 Years)
Can SELL the following SHARES:—

100 Almada, 1s. 9d.
60 Akankoo, 4s. 9d.
25 Bratsberg, £1 1s. 3d.
150 Balkis, 3s. 3d.
60 Colombian Hyd., 13s6
50 California Gold, 5s. 9d
30 Callao Bis, 14s.
50 Chile Gold, 7s. 6d.
75 Chontales, 3s.
20 Colorado, £2 7s. 6d.
100 Denver Gold, 2s.
30 East Rose, 7s. 6d.
25 Ecton, £1 13s. 9d.
50 Eberhardt, 3s. 9d.
25 East Blue Hills, 9s. 6
50 Frontino, 9s.
150 Glenrock, 2s. 9d.
50 Great Holway, 3s. 3d.
50 Hoover Hill, 5s.
100 Indian Con., 2s. 9d.
50 Kapanga, 1s.
60 Kohinoor B, 3s. 3d.
25 Leadhills, £1 7s. 6d.
40 La Plata, 5s. 6d.
85 Lisbon-Berlyn, 9s.
20 Montana, 13s.
25 Mysore Gold, £1 6s 3d
50 Nouveau Monde, 2s. 9
30 Nundydroog, 8s. 6d.
50 Nine Reefs, 4s. 6d.
30 New Callao, 6s. 3d.
50 Organos Gold, 12s.
25 Old Shepherds, 11s. 6
25 Orita, 32s. 6d.
30 Oscar Gold, 18s.
75 Ooregum, 2s. 9d.
25 Panulcillo, £2 15s.
40 Prince of Wales.
30 Potosi, 18s.
15 Roman Gravels, £3 10s
10 Richmond, £3 15s.
15 Schwab's Gully, £5¾.
10 Tolima A, £5¾.
20 Tolima B.
10 U. Mexican, £3 15s.
40 Victoria, 10s. 6d.
30 West Callao, 3s. 6d.
20 West Crebor, 2s., call paid.

SHARES BOUGHT AND SOLD AT NET PRICES.
PURCHASES FOR FORWARD DELIVERY AT SPECIAL PRICES ON RECEIPT OF DEPOSIT OF 20 PER CENT
BANKERS: ALLIANCE BANK (Limited).

MR. WILLIAM H. BUMPUS, STOCK BROKER AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established at this Address in 1867.]

BUSINESS transacted in ALL STOCK EXCHANGE SECURITIES, MINING and MISCELLANEOUS SHARES of every description.
An INVESTMENT LIST free on application.

SPECIAL BUSINESS in the undermentioned:—

100 Almada, 2s. 6d.
50 Akankoo, 6s.
25 Bedford United, 22s 6
150 Balkis, 3s. 3d.
50 Bratsberg, 22s.
50 Carn Camborne.
100 Chontales, 3s.
25 Copiapo, 42s.
25 Colorado, 47s. 6d.
100 Colombian, 13s. 6d.
100 California, 6s.
70 Callao Bis, 13s. 6d.
10 De Beer's, £5¾.
4 Dolcoath.
100 Devala Moyar, 4s. 3d.
60 Denver, 2s.
15 Devon Consols, 35s.
100 East Wheal Rose, 7s 9
20 Ecton, 35s.
50 East Blue Hills.
10 Great Laxey, £9¾.
150 Glenrock, 2s. 9d.
50 Home Mines Trust.
100 Hoover Hill, 5s.
120 Indian Consoll., 2s 9
50 Javali, 4s. 3d.
100 Kohinoor B, 3s. 6d.
40 Killifreth.
150 Lisbon-Berlyn, 8s. 9d.
20 Leadhills, 26s. 3d.
100 La Plata, 5s. 3d.
50 Marke Valley, 6s.
100 Montana, 18s.
50 Mysore Gold, 26s.
75 New Emma, 12s.
100 New Potosi, 17s. 6d.
50 Nine Reefs, 5s. 3d.
150 Nouveau Monde, 2s. 9
60 Nundydroog, 9s.
30 Organos.
50 Orita.
100 Ooregum, 3s.
100 Oscar Gold, 16s.
75 Old Shepherds.
150 Port Phillip, 3s.
70 Plumas Eureka, 12s.
50 Polberro.
25 Panulcillo, £2 13s. 9d.
100 Prince of Wales.
20 Quebrada, £3¼.
75 Ruby, 6s.
25 Richmond, £3 14s. 9d.
20 Roman Gravels, £3 6 3
100 South Caradon.
100 Transvaal, 12s. 6d.
150 Tocopilla, 1s. 9d.
20 Untd. Mexican, £2 13 9
100 Victoria Gold.
50 West Godolphin, 19s 6
15 West Kitty.
10 Wh. Grenville, £8¼.
100 Wheal Crebor.

Where prices are not inserted offers may be made.

. The present is a most favourable opportunity for investing in SOUND MINING SECURITIES, a judicious purchase of which at the low prices now ruling will, in all probability, result in large profits within the next few months.

Mr. BUMPUS devotes SPECIAL ATTENTION to LEGITIMATE MINES, and is in a position to afford reliable information and advice to intending investors and others in the selection of Shares either for INVESTMENT or SPECULATION. Correspondence invited.

ESTABLISHED 1867.

MR. CHARLES THOMAS
MINING AGENT AND ENGINEER,
3, GREAT ST. HELEN'S, LONDON, E.C,

MR. ALFRED THOMAS,
MINING ENGINEER, AND STOCK AND SHARE DEALER,
10, COLEMAN STREET, LONDON, E.C.

ESTABLISHED 1852.

MR. HENRY J. TALLENTIRE,
STOCK BROKER AND MINING SHARE DEALER.

SPECIAL DEALINGS in BALKIS, LISBON-BERLYN, MYSORE, and all TRANSVAAL and INDIAN Mines.

SHARES CAN BE SECURED for payment in one, two, or three months, upon deposit of 20 per cent.

OFFICES—21, THREADNEEDLE STREET, LONDON, E.C.
BANKERS: CITY BANK, Threadneedle-street, E.C..

MR. J. GRANT MACLEAN,
SHAREBROKER AND IRONBROKER, STIRLING, N.B.

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STOCK AND SHARE DEALER,
37, WALBROOK, LONDON, E.C.
ESTABLISHED 25 YEARS.

BANKERS: LONDON JOINT-STOCK, Princes-street, E.C.

POLBERRO.

Mr. REYNOLDS will give 41s. per share net cash for any part of 500 shares.

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Mr. REYNOLDS is also a buyer of any part of 500 shares herein.
Mr. REYNOLDS again recommends the purchase of these securities.
Also, he advises the purchase of WEST POLBREENS.

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Selected List of Investments post free on application.

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BANKERS—THE ROYAL EXCHANGE BANK (LIMITED).

SPECIAL BUSINESS in all INDIAN GOLD and SOUTH AFRICAN DIAMOND SHARES.

MR. W. TREGELLAS, 40, BISHOPSGATE STREET WITHIN, E.C.
Deals in all descriptions of STOCKS and SHARES at close market prices.

W. TREGELLAS has special business in SANTA BARBARA and LISBON BERLYN GOLD MINES.

MR. W. B. COBB, 29, BISHOPSGATE STREET WITHIN, LONDON.

Special information and business in all mines in the United States of Colombia—Tolima, Western Andes, Colombian, and other gold and silver mines in that country.

STOCKS AND SHARES.

JOHN LENN AND CO.'S CIRCULAR, POST FREE, contains Highest, Lowest, Latest Prices of all Stocks and Shares, also shows the return per cent. at a glance.

JOHN LENN AND CO.'S CIRCULAR, POST FREE. The advice given in their former Circulars has enabled investors to make from 50 to 150 per cent. in a week.

JOHN LENN AND CO.'S CIRCULAR, POST FREE, contains special information respecting the safest investments obtainable, paying from 5 to 12½ per cent.

JOHN LENN AND CO. (LIMITED), BANKERS, AND STOCK AND SHARE DEALERS, 4 AND 5, GROCERS' HALL COURT, LONDON, E.C.

PROFITABLE INVESTMENTS.

Our SPECIAL CIRCULAR for DECEMBER, now ready, contains particulars of several selections, paying from 5 to 10 per cent., in the safest and best-paying class of Securities, viz.:—

TRUST, MORTGAGE, AND INVESTMENT COMPANIES

ABBOTT, PAGE, AND CO.,
STOCKBROKERS,
42, POULTRY, LONDON, E.C.

THE COMMERCIAL DEPRESSION AND ITS CAUSES.

When all branches of industry are suffering so seriously from depression as they are at the present time it requires more than ordinary caution to prevent falling into grievous error in attempting to trace the causes of bad trade, and hence we find one party seeking to reintroduce Protection in England, another praying that teachers may be sent to the United States to teach the people of that benighted country the advantages of Free Trade, and others with more honesty, if less wisdom, suggesting that there should be Free Trade in everything except the commodity in which they themselves have to sell, but absolute Protection with regard to that. It will, of course, be found, upon dispassionate investigation, that it is the good old principle of "Everyone for himself" that gives birth to the argument in each case. But experience teaches us that if we have a neighbour on each side of us—the one rich, and the other poor—and we cannot by persuasion or conquest appropriate the rich man's property we shall be safest if we can make all recognise the fact that all have rights which should be respected, because we shall then be relieved from the usurpation of our own rights at the very cheap price of merely agreeing not to usurp the rights of others. The development of industry with associated capital has sometimes conferred enormous advantage upon a trade, but it has quite as frequently been productive of the worst evils—for too often the joint stock company has annihilated the private traders engaged in the same industry, and who were making satisfactory profits without one penny of the profits of which the private traders are deprived going into the pockets of the shareholders of the joint-stock company. In the same way Governmental trading—whether it take the form of State teaching, State manufacturing, or other State interference is annihilating public company and private trading enterprise together, so that whilst we should strenuously oppose any attempt to revive the abandoned principle of Protection we unhesitatingly admit that the efforts of the Liberty and Property Defence League to oppose all attempts to introduce the State as competitor or regulator into the various departments of social activity and industry which would otherwise be spontaneous and adequately conducted by private enterprise are not only unobjectionable, but are of a character that must be unflinchingly supported or initiated if Great Britain is to maintain the position which she has so long enjoyed as a commercial and industrial nation.

There can be little doubt that it is from State Socialism and over legislation that our miners, manufacturers, and working population are now suffering, and that if the annihilation of individual freedom of action—which annihilation now appears to be within a measurable distance of us—be not more carefully guarded against than it has hitherto been our miners, and, indeed, all engaged in industrial pursuits, whether as workmen or as capitalists, will be reduced to a state of permanent poverty, from which it will be extremely difficult to rise. Reference has before been made in the *Mining Journal* to some of the learned and unanswerable papers of Lord Bramwell, contributed to the League just mentioned, and under the title of "Laissez Faire," which really means no less than "Let well alone," his lordship has made some observations, which cannot be too widely published and read; some extensive extracts from it will, therefore, be given. His lordship says:—Mr. Lefevre, the Right Honourable the Chief Commissioner of the Board of Works, the President of the Social Science Congress, in his address to that body, told the British public that the old-fashioned notion that people were to take care of themselves was quite gone and ended. He said that he and the other members of the Legislature would do that for us. Now, as to myself, with a single exception, there is no one I would so soon trust with such a task as my old friend, Mr. Lefevre. I have perfect confidence in his honesty and good nature, and the highest respect for his ability. Still, there is one I should prefer to take care of me, and that is myself—not from any arrogant notion that I could take better care than he of any one else, but because I think I could of myself. I claim it as a special knowledge in which I excel him. I am sure I know my own wants better than he does. I have also a strong conviction that I should be more zealous in the gratifying of them. Let us put an extreme case. Suppose my friend and I had to care for each other's wants, instead of each for his own. I am afraid I should feed him sometimes when he was not hungry, and he occasionally would put me to bed when I was not sleepy. I should take him for his good to the Liberty and Property Defence League, and he would take me for mine to a Social Science Congress, to the edification of neither. Selfishness has something to be said for it. Nature was not altogether wrong when she made our own good our first care. For my part, then, I decline the help of Mr. Lefevre and other benevolent legislators. I ask to be let alone. Please govern me as little as possible. Prevent me doing mischief to others, but let me do it to myself if I like; I shall sometimes, not on purpose, but for want of knowing better. I am afraid more mischief would be done to me from the same cause by others. . . .

Mr. Lefevre says the "movement for extending the action of the State has received much of its impulse from philanthropists, philosophers, and political economists, among the greater number of writers and thinkers," &c., as I have before quoted. Now I will make a demand on Mr. Lefevre, which, as a brother lawyer, he will understand. It is a demand very effectual for stopping general and unfounded claims. Please, Mr. Lefevre, "further and better particulars." Who are your philanthropists? No, I can do without them; but who are your philosophers, political economists, writers, and thinkers? Give their names and their writings. I do not say there are no philanthropists, good men, who would govern us for our good. But unless, besides philanthropy, they possess some philoscphy and some political economy, I had rather they had nothing to do with governing me. Mr. Lefevre says, "The more recent school of political economists in this country, and still more on the Continent (Lassalle, Karl Marx, and the like, I suppose), have held, that while free exchange, free labour, and free contract are important" (really, now, only do think) "principles to maintain, yet that the State is bound to interfere when individual interests result in the oppression and degradation of the lower classes, and that it is justified in undertaking those works and functions which can be better attained by it than by individual effort." Now does Mr. Lefevre really mean that Smith, Ricardo, McCulloch, Say, Bastiat, ever expressed contrary opinions? If so, I say again, "further and better particulars." Where in their works are such to be found? Did they ever preach a doctrine different from his own—"We cannot, I think, oppose to any proposal of legislation, or to the extension of the functions of the State, any rigid doctrine of *laissez faire* based on theoretic objections to the action of society in its corporate capacity, or an abstract view as to the inexpediency of interfering with individuals. Each case must be dealt with on its merits." Good; so say we all. So said Smith and Ricardo, and the others, and so says Mr. Spencer. Let Mr. Lefevre read a thoughtful article on "Liberty and Socialism," by Lord Pembroke, in the National Review for May, 1883.

Mr. Lefevre says that freedom of contract is not interfered with when the State permits it to be made, though it refuses to enforce it. The best answer to make is, that there is only real freedom of contract when there is freedom to make an enforceable contract. Are there two kinds of freedom; one to make enforceable contracts, the other to make unenforceable. A freedom to make the latter is no freedom. It is idle. An unenforceable contract is null in law and in good sense. The jurist, the economist, Mr. Lefevre's "philosopher," would all say so. Mr. Lefevre goes on and says, "if on grounds of public policy, or for the protection of the weak against the strong, the State declines to enforce a particular contract, it does not interfere with freedom of contract, but the reverse!" Does it not? Why, it does; but does for a good reason. The greatest admirer of *laissez faire* never advocated that all contracts should be allowed and enforced; that an agreement between A and B, that B should murder C, should give A a right of action if B did not murder C. So of an agreement between a man and woman for cohabitation. All that the advocates of *laissez faire* demand, is that freedom of contract shall not be interfered with without good reason. The Truck Acts may, perhaps, be justified on this ground. But, in my judgment, it would be better to teach the wage receivers to take care of themselves.

Now, let us examine, continues his lordship, what Mr. Lefevre gives as the results of the new philosophy which is to be substituted for *laissez faire* and its old-fashioned teachers, Adam Smith and the others. By the way, he says the Reform Act of 1868 gave "so great an impulse to social legislation," &c. Mr. Lefevre does not say when the new school became of authority and Adam Smith and the others ceased to be. Was it not till the time of passing that Act? If so the old school may claim some merit for itself. One or two pretty good things were done before it. Commutation of Tithes—Amendment of the Poor Law—Reform of Municipal Corporations—Abolition of Slavery—Abolition of the Corn Laws—Free Trade generally. These are something to the credit of the obsolete school, and some may think will compare well with what has been done since. But to proceed with Mr. Lefevre. He mentions several measures passed since that Act, but truly says that they are not instances of the State interfering with the *laissez faire*, but the contrary. He says, "There have been two very distinct impulses to legislation—the one in the direction of limiting the powers and duties of the Government; in freeing the action of individuals from the influence and control of the State." Good; the more the better! I have nothing to do with them. My business is with the results of the other impulse which Mr. Lefevre describes as "in the opposite direction of increasing the intervention of the State in our social arrangements, of multiplying the functions of the Government, and adding greatly to the number of cases where the law prescribes the conduct of individuals or restrains their actions." Now, then, let us examine the instances Mr. Lefevre gives of this "grandmotherly legislation," as Sir W. Harcourt, borrowing from Sir J. Scourfield, called it. He says generally:—"Landowners, railway companies, owners of public-houses, shipowners, factory owners, and other interests have been successively dealt with, and made to feel that the State is supreme. The domain of private contract has been curtailed. Concurrent with these changes public opinion, operating through the House of Commons, calls the Ministers to account, and holds them responsible for every act of administration, and for the smallest events that occur, to a degree continually increasing." True "the smallest of events"—things unworthy of notice—things which, if noticed at all, should be asked not of the Ministers in the House of Commons, but of the superior of the person about whom the question is put. The practice is a cowardly way of insinuating a charge without responsibility, and puts on the person the duty, not of showing he was not in the wrong, but more, that he was in the right, which he should be taken to be till a *prima facie* case is made against him. I refused, when a judge, to notice such questions. Of this pleasant condition of things he gives the following proofs as to an extension of the Factory Act. He says:—"It is necessary for the law to impose limitation as a check on the one hand on the competitive race for profits of the masters, and on the other hand on the greed and ignorance of the parents." Good—agreed. Those who are not their own masters need protection. He proceeds:—"It has not been necessary to apply these laws to grown up men. They can protect themselves by combination." Good again In some trades, however, of a specially dangerous character, minute and elaborate rules have been laid down by recent Acts for their guidance, 'and are enforced by inspection in the interests of the workmen and the public.'" Cannot the workmen in these trades protect themselves by combination? Why not? They will not. As far as they are concerned the best thing to do would be to teach them; make them protect themselves from their own "greed and ignorance," instead of treating them like children, prescribing by legislation that a provision of "squash" should be made for them. . . .

Then Mr. Lefevre cites mine regulations. They certainly seem to him to have been beneficial. But they have, he says, added to the cost of working. They have created an army of inspectors There again we may say that the men ought to have been taught to insist on the improvement. As to ships, *laissez faire* had better have been left alone. Mr. Lefevre says—"Notwithstanding this" (meddling), "and in spite of a vast increase of staff, involving an annual charge of 70,000*l.*, it is to be feared that no effect has been produced on the loss of ships and the loss of life at sea." None. But a grievous effect has been produced on shipowners by the worry and vexation of these regulations. Their difficulty of competing with foreigners, bounty helped, has been much increased. It is most to be deprecated that their troubles should be increased in the present depressed condition of shipping. As to railways, Mr. Lefevre says, "the Railway Commission is empowered to compel a railway company to alter fares and provide greater facilities for passengers where it is clearly proved the company is treating particular districts unfairly, or neglecting its duty." Perhaps. I do not know. But what is the meaning of treating a district unfairly or a railway company neglecting its duty if it acts according to law? Then we have the Employers' Liability Act. Mr. Lefevre does not state its effect quite accurately. He says it makes employers liable for the negligence of their agents to their servants. Not quite so. Only for the negligence of those who supply the place of the masters. And it is not accurate to say it makes them liable. The effect of the Act is this. The master was not liable before unless he and the servant agreed he should be; now he is liable in certain cases unless he and the servant agree he shall not be. Theoretically the change is of small consequence. Practically it is of more, as people do not understand it and incur a liability they are not aware of The Act does not seem to have done much harm. Then Mr. Lefevre cites the Hares and Rabbits' Act. If ever there was a contemptible piece of legislation, it was that. Hares and rabbits do harm to crops. What is the farmer's remedy? To reduce his rent. "So much rent if I may destroy hares and rabbits, so much less if I may not." The farmer, apparently, could not understand this; and so, poor fellow, to please him, it was enacted that he should have a right to kill them, though he solemnly agreed not to do so. No matter for what reason of sport or profit his landlord stipulates that the tenant shall not kill ground game, no matter what reduction of rent he makes as the consideration, no matter how solemnly the tenant may agree not to kill them; he may. He may break his covenant, his word, have the land at the reduced rent, and take the ground game. This was enacted by the noble and honourable gentlemen who form our Lords and Commons. Why? To "protect the weak against the strong?" As the Truck Act protects wage-receivers? No; it was passed at a time when the farmers were masters of the situation, when farmers went begging for tenants, when farmers might dictate their own terms. Oh! but they do not understand this. Then let them learn. Do not add to their helplessness; do not tell them they may make promises, break them, and cheat with impunity. . .

Then Mr. Lefevre recites the Act prohibiting the payment of wages in public-houses. The history of that piece of legislation is instructive and amusing. There was an Act prohibiting such payment in the case of workers at coal mines. Payment of their wages at public-houses never could have been necessary. It occurred to somebody to extend this Act to all wages. And accordingly, with no evidence of any or what mischief existed from the law as it stood, with no evidence as to what mischief and inconvenience would be caused by a change in the law without any exception or qualification, a Bill was brought in to forbid payment of any and all wages in public-houses. The publican could not pay his own workpeople in his own house! And the Bill was so ingeniously framed that it prohibited the payment of wages in houses where no intoxicating drink was sold. Some of these things were set right, and the Bill passed. What has been the consequence? The law has been broken, as all such laws will be. If it is for the convenience alike of master and man to pay and receive at the public-house it will be done, any law to the contrary notwithstanding. Here, as in like cases, we have a bad commencement of law breaking. Mr. Lefevre says, as to the Employers' Liability Act, "If it should prove to be a fact that large numbers of employers are forcing contracts on their men to elude the liability contemplated by that Act, I should see nothing contrary to principle in refusing to recognise such contracts, unless they contain a fair and reasonable substitute." "Forcing." What is the meaning of that? How can a contract be "forced" on a man? How can Mr. Lefevre, a lawyer, use such an expression? How can he, an economist, use it? Does he not know that what advantages the workman is to have in wages and otherwise is regulated, not by the will of the master, but by the "higgling of the market" for labour? Does he not know that if the master gives more in one way he must give less in others? I say must—to get his fair profit and compete with others. But see what would happen. A and B comes to me for work; I say 5*s.* a day and liability for accidents—6*s.* a day and no liability. A chooses 5*s.* and liability; B 6*s.* and no liability. Would Mr. Lefevre forbid this? Would he forbid B entering into such a contract and being bound by it? Would he see nothing "contrary to principle" in B, after receiving his 6*s.*, claiming for an accident? Mr. Lefevre would say perhaps that the extra shilling is "a fair and reasonable substitute." I say, I repeat, that though not specifically named, that substitute always exists, must and does in the nature of things; that is, if there is no liability, the wages are more.

Mr. Lefevre would have municipalities provide gas and water—at present; possibly at a future time bread, coals, and other things. Those effect philosophers, Adam Smith and the others, thought otherwise. Monsieur Berryer objected to it, somewhat in these terms:—"These matters must be left to private enterprise. That alone knows how to manage cost and return; that alone can set against loss and ensure profit; that alone can prevent the entrance of grand ideas that are out of place, and lead to needless and wasteful expenditure." I cannot remember his exact words, but they were near enough to what I quote to show that he belonged to the extinct school. Mr. Lefevre admits that the good things the State provides us involve an army of Inspectors and 300,000*l.* a year. He might add, and a constant worry and intermeddling, causing not only vexation but expense. However, this is the legislation Mr. Lefevre admires. A legislation based on the preposterous notion that the State can provide for us better than we can provide for ourselves. A legislation which treats people as helpless, and, instead of teaching them to struggle for themselves, adds to their feebleness by a mischievous taking care of them. A legislation which prohibits a valid bargain between two people who wish to make it, and perfectly understand it. A legislation which admits the making of the bargain, but permits its breach. A legislation which, it is said, permits freedom of contract in the making, and promotes freedom of action in the breaking of engagements. A legislation which deliberately provides that frauds may be committed with impunity. That this should be proposed anywhere is to me a wonder. But that it should be proposed here in England almost passes belief—England the freest of all countries, the least governed, the most intolerant of control and interference, and the most prosperous; I except colonies and new countries. Not only the most prosperous, but from its very freedom and independence of restraint the first in the world for everything that makes a nation great and good. But this is all to be changed for something Mr. Lefevre thinks better. Never. *Vive Laissez faire!*

And it is a precisely similar system of interference to that which Lord Bramwell condemns that causes nine-tenths of our public companies to be carried on with loss to the shareholders, though causing loss to individual traders engaged in similar business. The trade managers who, assuming them to be properly qualified for their position by previous training and experience, would, with the advantages of ample working capital which the joint-stock system can provide, have no difficulty in earning excellent profits for the shareholders (unless the promoters have charged so exorbitant an amount for purchase-money that reasonable profits upon the nominal capital are altogether impracticable) is prevented from doing so through the interference of a gang of directors utterly ignorant of the trade to be carried on. The trade manager has the choice of holding his position for a few years by running the business through adopting the silly suggestions of the directors—the results being a loss of his reputation as a competent man and a sacrifice of the shareholders' money—or of refusing to obey the directors, and thus, by incurring their displeasure, bringing about his own dismissal in the shortest possible period. The directors, feeling and knowing their utter incompetency to conduct the business entrusted merely labour to draw their fees as long as possible their sole display of energy usually being seen in their constant change of trade managers, so that everyone knows all that can be learned of their internal business affairs, and, in consequence, additional competitors spring up in all directions. The shareholders become dissatisfied, the business is conducted recklessly so as to procure some ready money to distribute among the hungry and angry shareholders, as dividends, though it does not justly come within the denomination of profit and prices, are depressed to the permanent injury not only of the reckless company itself, but of the entire industry. Such a picture would apply especially to mining enterprise, the action indicated being precisely that which has forced down the prices of copper, tin, and lead, and rendered it so extremely difficult to earn profits from mines producing those metals that the raising of capital is almost impossible. To suggest a remedy would be almost impossible, though it is probable that by a thorough discussion of the whole question the means of bringing about some substantial improvement might be discovered.

Improved Melting, Puddling, and Reheating Furnaces.—The object of the invention of Mr. T. B. Massilcs, of Millom, is to improve the construction of furnaces for melting, puddling, or reheating steel, iron and iron ore, or other metals, so as to obtain greater facilities for cleansing such furnaces and removing the dust and other waste products that accumulate in the regenerator, and also to obtain a more extended distribution of the gas and air employed in heating the furnace. He carries these objects into effect by forming a separate connection for the admission of air to the furnace, and so preventing the air from passing through the joints of the brickwork and coming into contact with the gas as heretofore, until the moment when the air descends through the roof, when it comes into contact with the gas issuing from the regenerator, and thus the greatest intensity of heat is obtained at the point where it is most needed. The gas issuing from the regenerator is conducted through a number of passages inside the furnace and extending the full width of the furnace, or nearly so, thus forming a passage for the gas and waste products of combustion alternately. Air is conducted through a suitable tube or passage at the end of the furnace to an opening built or formed in the roof of the furnace, preferably at either end; this opening is covered by a loose top or casing, with an enlarged semicircular or suitably shaped end; this loose top may be removed at any time for cleansing purposes or repairs without interfering with or stopping the furnace. The usual reversing arrangements and regenerators are employed, and suitable cleaning doors are fitted in the gas passages leading from the regenerator. Through the walls of the furnace is a tube or passage communicating with the atmosphere, and through which air passes upward under a loose top or cover, and downward through the top of the furnace to openings through which it enters the combustion chamber; there are a number of gas passages through which gas is conducted from the regenerator to the combustion chamber. These passages extend the full width, or nearly so, of the chamber, and are placed so that the air for combustion descending through the said openings impinges directly upon the gas issuing from the passages, and thus causes an intense heat to be directed on the burden in the combustion chamber. The other end of the furnace is constructed in a similar manner. When the air and gas are admitted through the passages at one end of the furnace the waste products of combustion pass out through the corresponding passages at the other, and *vice versa*. The loose tops or covers are semicircular in form, and so fitted that they may be removed at any time when required for cleansing the passages or for other purposes without interfering with the working of the furnace; there are covers and cleaning doors which can be removed for the purpose of cleaning out the passages when required.

American Copper.—The description of the various copper and brass manufacturers supplied by Messrs. C. P. Hussey and Co., of Pittsburgh, Pennsylvania, has just been issued in the form of a series of handsome coloured sheets, rather over 6 in. × 5 in., ornamented with tasteful copper and brass-coloured printing. The sheets are connected with a paper fastener at one corner, so that they are in every repect as compact as a book of similar size. The utility of the arrangement is obvious; instead of sending a large and costly general catalogue to every customer, not all of whom even care to wade through it, a selection is made for each class of consumers, so that annoyance is prevented and business facilitated

GOLD MINING IN NATAL.

Writing from Moodie's Reef, a correspondent gives the following information regarding the mines there. He states that everyone there had come to the conclusion that there was no alternative but to accept the rules of the syndicate. Hopes had been entertained that the Government would take steps to interdict Moodie's Company from demanding licenses from the diggers, but up to the present no such steps had been taken. It was a matter of surprise that the Government had not taken over the fields after the conclusion come to by the Commission that they were not situated on Moodie's farms. Possibly the syndicate had come to some arrangement with the Transvaal Government that they make such demands as they have done. Although many had signed rules few had pegged out, as there were very few reefs that could bear the strain of the high terms. Those who had accepted had done so in the hope that something extra good might turn up. Mr. Anderson, the company's agent, had been summoned to Pretoria, and there were many surmises as to what it is about. The men on the interdicted ground are making the best use of their time. They have been summoned to appear in Pretoria to show cause why they have treated with contempt the High Court in regard to the decision in the case lately before them. It is believed the men will not appear unless arrested. It was sickening to think of the treatment of the diggers by the Government, and when the country was eaten up with capitalists and adventurers perhaps they would awake to a sense of their mismanagement. The Pioneer water-race was not yet completed, and he was afraid would not be for some time. After heavy rains the water breaks through in all parts up to the place it has been completed to, so there is continually work to be done over again. The wheel, which is not yet completed, is considered by many to be too frail for the work expected from it.

It was quite an established thing to expect heavy rains with thunder and lightning every week. Rivulets running down the hills in all directions, Concession Creek almost impassable, tents and houses almost swamped, were just a few of the items adding interest to the gold digger's life. A concert on behalf of the Hospital Fund was a great success. The hospital itself was apparently at a standstill, no doubt owing to the want of funds. Sanitary matters were frighfully neglected, and if some epidemic broke out it would not be a matter of surprise. Another correspondent of the Natal Mercantile Advertiser writes:—It is an ill wind that blows nobody good, so we need not growl over the heavy fall of rain. Water-races are now filled, although our huts are the same. The Umjindine Creek, Natal Road, is impassable. The sheriff is reported to be at the bottom of the hill to escort the 15 interdicted men who defied the order of the Court to Pretoria gaol. Much sympathy is felt for these men. The public are waiting the reply of Moodie's Company to the suggested amendment to their terms. The diggers will defy them if their offers are refused, and it is to be hoped some compromise will be arrived at. The company would do well by offering ground for the first three years at from 1*l.* to 2*l.* sterling per month and 5 per cent. on gross gold, as by this means they would have reefs properly prospected which otherwise will be abandoned.

It is no easy matter to say what percentage any reef can afford to pay at present, except the Pioneer Reef, and this reef is not the wonderful thing everybody at first thought it to be. It will not average more than 3 ozs to 4 ozs. to the ton, as in some places the quartz is quite blind. Hibernia Reef will turn out the best on Moodie's farms. In Woodward's claims east as rich quartz as Pioneer ever produced has been unearthed, and the Ivy Reef turns out to be a continuation of Hibernia; but there is not such a body of quartz as on the claims of Hibernia Company. The Hibernians are now crushing to test the yield, in view of going in for more machinery. They will find the water question dip deeply into their pockets, as they must have more water to drive more machinery. The Pioneer Company have engaged a new manager who, it is said, has condemned all the company's machinery, which should start work the first week in November. The Roburnia Company is crushing by Dales's wheel, but expect to have their own ready by Nov. 1. One or more of the members of the Pioneer Company have been down on the Roburnia Company because they would not support them in their views. Hillary seems to have been at the bottom of the jumping of Kestell's claim, and although he has tried hard to keep his name out of it at last he had to come to the front. His tool (Moulton) let the cat out of the bag. Hillary and his friends tried to bounce Dales and Ratsey, who are working the claim, but found it no go. The Rosa Ada Company will be commencing operations very soon, as their ground will be at liberty when the sheriff walks his prisoners off. The Dempster Company does not seem in a hurry to get to work. They were to get machinery from the Lisbon-Berlyn Company, but this was knocked in the head, and it is also stated that old Alic Dempster will not give up the ground before the coin is put down. Every day is proving that these are not a poor man's fields. Men are now banding themselves into small companies, to enable themselves to work economically. Capitalists will soon be here and find the needful to give these companies a start, and then you will hear of hundredweights of gold being extracted. I believe that 1 ton of gold has already been taken away from Moodie's farms, and that many tons are still left.

SMELTING IRON ORES WITH LIQUID FUEL.

With a view to economise the fuel and time heretofore necessarily consumed in smelting iron ores Mr. S. R. SMYTH, of Holborn, proposes to employ either the hot or cold air blast entering the furnace as a carrier to convey the liquid compounds through the tuyeres direct into the incandescent mass therein. The liquid compounds he employs are hydrocarbons of any base, such as creosote, petroleum, or coal or shale oil, and alkalies, such as sodium hydroxide, or potassium hydroxide, and oxyhydro compounds, such as water or vapour. These compounds may be used either in combination with or separate from each other, and are conveyed through pipes leading to the tuyeres to atomising injectors, which are fixed to mixing boxes fitted to such pipes, wherein such compounds are caught up by the air blast and conveyed through the tuyeres into the furnace; or such compounds may be turned into the furnace direct.

To carry the invention into effect he erects in any convenient position accumulators or holders of suitable form and capacity to hold the liquid compounds, and in order to render the action of such accumulators automatic, he fits the same with suitable pipes, floats, valves, gauges, and checks. He places such accumulators at a suitable elevation to give sufficient impetus to the flow of the liquid compounds therefrom to overcome the pressure of the air blast as it enters the tuyeres of the furnace. He also constructs and places mixing tanks or reservoirs in any convenient position, from which the liquid compounds are pumped into the accumulators and brings suitable pipes from such accumulators and surround the furnace with a main pipe of each compound. These main pipes are fitted with suitable valves and gauges and have suitable service pipes connected thereto, which service pipes are fitted with valves and atomising injectors as presently described. A fall-in valve is fixed in each of the pipes leading to the tuyeres so as to open or shut the valve that supplies the liquid compounds to the atomising injectors as required. A fall-in valve is also fixed on the main air blast pipe leading to the furnace beyond the shut-off valve to provide for the escape of any accumulated gases arising from the liquid compounds when the blast is shut off. These valves are worked mechanically, and are faced with asbestos packing or metal. A pressure valve fitted with a volute spring and regulated by a set screw is fixed on the main air blast pipe surrounding the furnace to relieve any sudden pressure. By this means he claims to be able to produce more heat with less solid fuel, and obtain more metal in a shorter period of time than has heretofore been practicable.

RAILWAY DIARY AND OFFICIALS' DIRECTORY.—The new edition, that for 1885, of this volume is in all respects equal to its predecessors. The publishers—Messrs. McCorquodale and Co., Cardington-street, N.W.—have carefully brought the information down to date. The diary is, as usual of excellent paper, and the half-blank tables after the particulars relating to each railway are of the utmost utility for keeping a neat and systematic record of the comparative traffic returns for the current and previous year.

AMBULANCE EMERGENCY CASE.

The importance of suitable ambulance arrangements at collieries and large works has constantly been pointed out in the *Mining Journal*, and fully 30 years ago we published many valuable and interesting communications upon the subject from our esteemed correspondent the late Mr. Matthias Dunn, one of the earliest of Her Majesty's Inspectors of Coal Mines, yet it is only comparatively recently that any real efforts towards carrying out Matthias Dunn's suggestions for systematic ambulance assistance for workmen have been made. There can be no doubt that a comfortable litter for conveying an injured workman to the hospital or infirmary can be made at any colliery or works at a cost of not more than 3*s.*, so that a dozen might be provided for less than 2*l.*, which is certainly not a very serious addition to make to the plant account, and we are sure the workmen would highly appreciate the forethought shown for them. These cheap litters, which could be got ready for use in two minutes, would be thus constructed:—About 2¼ yards of strong sacking would be hemmed down at the ends to measure 6 ft. The sides would be similarly hemmed to measure 2 ft. 3 in. Two tubes of iron, ¾ in. external diameter and 8 ft. long, would be provided. Two similar tubes, but 2 ft. 6 in. long, would be fashioned by the smith, so that there should be a loop at each end 1 in. diameter, the centre of the loops being 2 ft. apart. Now the sheets would be kept stored and dry in the office or engineroom near the pit's mouth, and the tubes would be stored close at hand. In the event of an accident two of the 8 feet tubes would be passed through the hems of one of the sheets, when by slipping two of the looped tubes over the long tubes—one at each end of the sacking of course—the litter would be made and ready for use, and could be carried off by a couple of men hand-barrow fashion, or by four men on the shoulders, according to the distance which the poor fellow had to be taken. Where there are facilities for punching it would perhaps be cheaper, and would be preferable, because feet to the litter would thus be provided to punch a couple of 1 in. holes 2 ft. apart in a ⌐ piece of ½ in. plate, but these are mere details, which make no real difference. The object is to have litters which would occupy little space when not in use, which would be quickly put together, dry, and comfortable when wanted, and which would be so cheap that there would be no excuse for neglecting to provide them wherever workmen are liable to injury.

But it often happens that something can be done for the sufferer before he can be secured the advantage of professional medical attendance, and in very many cases the judicious application of these first aids make just all the difference between the preservation and the loss of the life in jeopardy. Of course one cannot assist the sufferer without some appliances for doing so, and it has not unfrequently happened that at the moment an accident has taken place the delay in obtaining even the roughest substitute for a bandage, a pin, or a pair of scissors has been most distressing. To prevent these shortcomings an Ambulance Emergency Case, for rendering temporary assistance to the injured, has been designed and prepared by Mr. R. H. MUSHENS, of Sunderland, and from the flattering testimonials which he has received from both medical men and others who have adopted it, it appears exactly to meet all requirements; indeed it is not doubted that these cases, first introduced at the late Sunderland Infirmary Bazaar, would prove invaluable in mines, engineering and iron works, collieries, foundries, factories, and all large works where accidents are likely to occur. They supply in a neat, compact, and portable form everything necessary for the dressing of wounds, setting of fractures, &c.; and as in many instances the life of an injured man depends very largely upon prompt and efficient measures being taken, their general adoption by all employers of labour cannot be too strongly recommended. The appliances are of the simplest description, and the instructions given how to render assistance to the injured, and also the directions as to their removal, are most clear and concise, thus enabling an ordinary workman to render very efficient aid to his less fortunate comrade. Wherever these cases have been introduced they have proved of great service, as the testimonials appended abundantly testify; and especially so is this true of those works where the employees have availed themselves of the instruction afforded by the St. John's Ambulance classes. The case, which is neatly made of polished pine, contains a complete set of splints, roller bandages for finger, hand, arm, leg, head, and broken ribs; Esmarch bandages, with an illustration showing how they may be applied in 32 different ways; tourniquet, for arresting bleeding; strapping-plaster, lint, pins, sponge, scissors, Friar's balsam for slight wounds, Carron oil for burns and scalds, sal volatile, smelling salts, a graduated measure, and hints for rendering assistance to and removing the injured.

Altogether the case is well designed to meet the wide-spread and long-felt want of some simple appliances, such as can be used by one workman in temporarily dressing the injuries of his fellow workman, pending the arrival of surgical aid or prior to despatching him to the infirmary. It is well known that many a life has been sacrificed for the want of a little timely assistance, and that sufferers have had their injuries fearfully aggravated by being sent to the infirmary without any attempt at a temporary dressing of their injuries. Thanks, however, to the spread of the ambulance movement a better state of things is dawning. In many works where the men have received ambulance instruction these cases have proved especially valuable, and many instances are known where very beneficial results have followed the use of these simple appliances by workmen who, not having had the advantage of such instruction, have simply followed the directions supplied for their guidance. For the dressing of slight injuries these cases are very useful, and will effect no small saving to large firms in both time and money, preventing, as they do, the necessity of the workman having to leave the works in order to get his injuries dressed, and, as often happens, never returns that day. For mines the Emergency Case will be a decided acquisition, as it may, from its portable character, be taken down into the workings, and a man's wounds dressed before sending him to bank, that often occupying a long time, and minutes are of serious importance, especially if he is bleeding all the while. Whilst, however, these cases are especially designed for use in collieries and mines of every kind they are none the less useful in many other directions.

For a single five pound note a dozen of the litters mentioned and one of the Ambulance Emergency cases could be provided at any mine throughout the country; and we know no direction in which that amount could be expended with more important and permanent benefit to the whole of the workmen employed.

TREATING SCRAP ZINC TO RECOVER ZINC AND SOLDER.—Scrap zinc usually consists of pieces of plates spouts or tubes that have been used and have become damaged or worn, and these pieces often have on them solder, or are accompanied by pieces of iron and foreign matters, so that when they are melted up, the product is very impure, and there is great loss in the form of dross. The invention of Prof. A. K. HUNTINGTON, of King's College, Strand, and Mr. HUMPHREYS, relates to a process for treating scrap zinc, so as to recover pure zinc from it, and also to recover a large proportion of the solder that often accompanies it. For this purpose, after assorting the scrap in suitable sizes and shapes, we cut it up into small pieces, removing all iron and separating those pieces which have solder on them. We wash the pieces in hot water which may contain alkali, preferably employing a perforated revolving drum which revolves in the hot liquid. Having thus cleared the zinc pieces from paint, tar, and other impurities, we melt them and cast the zinc into ingots. We also wash the pieces containing solder, and having melted them, allow the fused mass to cool slowly, separating the metals as the mass cools. This melting and cooling can be repeated several times if required for more complete separation of the metals. The portion containing mostly solder may be melted again and the zinc may be separated from it by exposure to air or poling with superheated steam. The portion containing mostly zinc may be treated as above described by repeatedly melting and slowly cooling. The dross produced in the melting of the zinc is treated by distillation for the recovery of the zinc from it; but the quantity of the dross may be very much reduced by introducing the pieces that are to be melted at a low level in the melting pot, passing them down a tube through the molten metal.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

GLOBE BLEACHING COMPANY (Limited).—Capital 50,000*l.*, in shares of 10*l.* To purchase, manufacture, bleach, dye, and deal in cotton, linen, silk, &c.; also to purchase the business now about to be commenced by Messrs. Goulden and James, at the works at Seedley, in Pendleton, in the county of Lancaster. The subscribers (who take one share each) are—Robert Goulden, Seedley; J. H. James, Seedley House; W. R. C. Goulden, Sedley; Edmund B. Goulden, Seedley; H. B. Goulden, Seedley; E. Parkhurst, Seedley Cottage; and Mary Goulden, Seedley Cottage, Seedley.

JAMES AND CO.—Capital 100,000*l.*, in shares of 100*l.* To acquire the business and properties of John Ismay and Co., of the Ouseburn, Newcastle-upon-Tyne, including the business and properties of the firm of James and Co., which they have purchased, and to continue same as lead, paint, oil, and varnish manufacturers and dealers, mineowners, and saw mill properties. The subscribers (who take one share each) are—John G. V. Ismay, Park-terrace, Newcastle-upon-Tyne; M. P. Ismay, Sydenham-terrace; T. Abbot Hutton, the Chesters; J. Van Capel, Maple-street; Charles D. Ismay, Osborne-road; Thomas P. Ismay, Osborne-road; Joseph A. D. Shipley, Winchester-terrace, Newcastle-upon-Tyne.

BRITISH HONEY COMPANY.—Capital 20,000*l.*, in shares of 1*l.* To produce, purchase, sell, or otherwise deal with or in honey in any form, and all products of honey. The subscribers (who take 50 shares each) are—R. Herbert R. Peel, Thornton Hall, Stoney Stratford; F. S. A. Hanbury Tracy, M.P., Queen's Gate; Duncan Stewart, Harcourt-terrace; F. Zchetmayr, Crescent-place, Clapham Common; George Walter, Lingfield-road, Wimbledon; Thomas Wm. Cowan, Horsham; John Hurkle, King's Langley, Herts.

CONSTANTINOPLE CIGARETTE COMPANY.—Capital 4000*l.*, in shares of 1*l.* To carry on in England and elsewhere the business of cigarette, tobacco, and cigar manufacturers, also to carry into effect an agreement made between Arthur G. Bagot, of Fisherwick, and the Right Hon. John Lord Churston, of Lupton. The subscribers (who take one share each) are—Churston, Lupton; W. G. Buller, Queen's Gate; A. G. Bagot, Fisherwick; Robert D. Fyers, Oakley-crescent, Chelsea; A. Coe, Hart-street, Bloomsbury-square C. C. de Crespigny, Maldon, Essex; G. Coft, Newry.

THE MOUNT CARBON COMPANY.—Capital 50,000*l.*, in shares of 100*l.* To carry into effect an agreement dated Dec. 5, 1884, and made between the Right Hon. Charles P. Pelham Clinton and Evan Powell, to purchase or otherwise acquire any lands within the United States of America, and to work any mines, iron ores, &c., on same. The subscribers (who take one share each) are—E. Powell, Llanidloes; Wm. Donaldson, Llanidloes; J. H. Webb, Llanidloes; Charles J. Morris, Stafford; Henry W. Pelham Clinton, Moorcourt; Hubert Edward Pelham Clinton, Chillingham Barns; and John Williams, Bala.

NICHOLAS AND COMPANY.—Capital 70,000*l.*, in shares of 10*l* Tc establish and carry on in all their branches the trades and businesses of timber merchants, at Alexandra Docks, Newport, Monmouthshire, and to sell wood of every description, slates, tiles, bricks, &c. The subscribers (who take one share each) are Charles R. Lyne, Newport; Edwin J. Grice, Newport; Charles Lyne, Newport; H. Wm. Martin, Dowlais; Ch. H. Lonsdale, Greytrie, Newport; F. Widowfield, Newport; and Henry A. Huzzey, Newport.

JOHORE LAND BANKING AND AGENCY CORPORATION (Limited).—Capital 1,000,000*l.*, in shares of 5*l.* To purchase or otherwise acquire a certain convention made between His Highness Abubakar, the Maharajah ruler of Johore, and the Malay Peninsular Agency, also to produce or acquire lands, and to exercise and enjoy all kinds of powers and privileges, and to aid, encourage, and promote immigration into the property of the company. The subscribers (who take one share each) are—Charles Clifford, K.B., Cannock; John G. Ledbury, Gresham Buildings; F. Dior, Morgate-street; James M. Waters, Gray's Inn-place; B. D. Colom, Leadenhall-street; John F. C. Norman, Laurence Pountney Hill; and J. Walsh, Lombard-street.

SPANISH HYDRAULIC GOLD COMPANY.—Capital 75,000*l.* in shares of 1*l.* To purchase, take, or lease, or otherwise acquire any mines or mining rights in the kingdom of Spain or elsewhere; also to crush, mix, quarry, wash, buy, sell, and deal in minerals, machinery, &c. The subscribers (who take one share each) are—P. J. Harvey, Dulwich; T. J. Hillman, Clifden-road, Clapton; A. Connalty, Caledonian-road, Holloway; Edward Faunch, Little Ilford; L. M. Cook, St. John College Park; H. Bamberger, Abbey-road; Jas. Easterbrook, Freke-road.

TEXAS GUANO COMPANY.—Capital 100,000*l.*, in shares of 5*l.* To purchase or otherwise holding of land, grants of lands, mines, in Texas, U.S.A., or elsewhere, and work the same for the purpose of extracting guano, sulphur, and other minerals; also to carry out an agreement made between the Hon. W. Nelson Hood and Francis A. Groom. The subscribers (who take one share each) are—F. A. Groom, Victoria Mansions; W. Nelson Hood, Wimpole-street; G. C. Harvey, Great St. Helen's; Wm. Berry, Ballator-road, Clapham; J. Crewe, Mayhola-road, Clapton; J. Fraser, Hugh-street; Ernest Henley, Baddow House, Great Baddow.

STOCK EXCHANGE YEAR BOOK.—The volume annually issued by Mr. THOS. SKINNER, under this title, now enjoys so wide a reputation for accuracy and utility that it will suffice to mention that the eleventh annual edition—that for 1885—which has just been published by Messrs. Cassell and Company, appears to be fully equal to those of previous years. To capitalists such a volume as the present would be invaluable if properly used, since it affords a clue to the position of certain semi-defunct companies about which nothing is publicly known except that shares in them are sometimes palmed off upon verdant speculators on the plea that the directors are too high in the social scale to be dishonest in the legal sense of the term, and that, therefore, they must be worth purchasing at the heavy discount at which they are offered. The capitalist may learn, for example, that an earl, an admiral, a fish of prey, and another are directing a concern which has paid no dividend for seven years, but that reports concerning its position are not obtainable at the offices; whilst in another case the officers of a concern which has been "considerably deader than a doornail" the executive ingeniously declare that "the development of the mines is not yet complete, and operations have been suspended for a time," the intention perhaps being to revivify the scheme as was done with the now prosperous (?) Nouveau Monde, Ruby and Dunderberg, several of the Indian mines, "and a few others." Indeed the perusal of the Year Book will be a real treat at this festive season, especially when the reader is not (or, to be more accurate, has not been) pecuniarily interested in any of the innumerable undertakings in which the practical joke has been played of enticing subscriptions from verdant capitalists, and keeping the company out of the winding-up court as long as there is anything to distribute amongst the directors and officials. One enterprise, for example, has a capital of upwards of 200,000*l.*, as well as 12½ per cent. preference shares, 10 per cent. preference shares, whilst a bank has a first mortgage on the property, and second mortgage bonds are also in existence, yet it goes on as comfortably as possible, and makes pretty regular returns; but the second mortgagees do not always get their interest, and it is not asserted that the directors and officials obtain their salaries, though it is probable that unless they did so they would not continue year after year without earning anything for the shareholders. If a tabulated statement were published of the amount of money subscribed by the public for the several concerns mentioned in the book, the amount expended on the development of the properties, the fees and salaries paid to directors and officials, and the amount taken by the promoters, it would be found that whilst a handsome profit is obtained upon the amount paid to the original owner plus the working capital expended in development, yet from the exorbitant charges made by promoters and directors commercially valuable properties are condemned as worthless, and shareholders and capitalists obtain so small a return upon their investments become disgusted with, and therefore ignore, joint-stock enterprise altogether.

Original Correspondence.

OSCAR GOLD MINING COMPANY.

Sir,—Referring to the letter of "A. S. O. S." on Oscar Gold Mine, in last week's *Mining Journal*, there is an item in his estimate that should be corrected. Capt. Daw stated at the meeting that 10s. per ton covered the mining and milling expenses, but with the additional stamps now ordered the cost could be reduced to 7s. per ton. Now 3s. per ton is an important feature, and would add more than 18,000*l.* to the estimate of reserves as figured out by your correspondent. No doubt disappointment was felt with the result of the first crushing at Oscar until the facts of the case became known at the meeting. Capt. Daw stated that one-third of the stampstuff put through the mill on that occasion was old attle at surface, originally thrown out by the prospectors when first opening on the lode, and in which little or no gold was discernible ;it was purposely put into the mill to fill interstices, and to test the action of the stamps on first starting. Now, in the Mysore the poor rock was picked out, but in Oscar the est was not put into the mill. If you deduct this one-third, and add 25 per cent. for the quicksilver, which was not retorted (which is a fair valuation), the product was above ¾ oz. to the ton, and when the next return is made, which may be expected in 10 days from now, any lingering feeling of disappointment will disappear I trust. Those who know Oscar best have no anxieties now about the future, the policy of Capt. Daw is dividends, not speculative manipulation; if it had been otherwise he could have easily shown a larger product by picking his ore out of 800 or 1000 tons he had at surface. The great extent of the Oscar territory admits of the organisation of several companies, at the option of the board of direction, either as sub-lets, as royalties, or sales outright, for the company has located and tested 14 lodes - in addition to the Oscar—already, and have much more stuff than the mill can handle, some of these lodes being admittedly richer in assay than the Oscar lode itself.

The influence of the gulf stream impinging on the coast of Norway enables Oscar to work all the winter months. Now a climate that permits continuous mining operations, a good Government that gives protection to industry and compacts, labour at 2s. 6d. per diem, coal at 13s. per ton, good management, and proximity to headquarters, are unusual and important factors in the successful conduct and working of such an enterprise as a gold mine. It is but necessary to point out these features in Oscar to have them become patent to all. When the 50 heads of stamps, then, get to work next February we may hazard the prophecy that Oscar will convert sceptics into believers, sellers into buyers, and enemies into friends.

Peterborough, Dec. 22. F. H.

CHONTALES, AND CHOICE OF DIRECTORS.

Sir,—A notice has been given of the fifth ordinary general meeting of the shareholders in the Chontales Company, at the offices of the company, Gresham House, Old Broad-street, for Monday next. A circular has accompanied it, which states that in the opinion of the board Mr. Palmer's election on the directorate would be a disadvantage to the true interests of the company, and they would consider his appointment as a want of confidence in the present directors.

The early part of November last I received letters from shareholders holding over 20,000 shares expressing a wish to my being nominated at the fifth ordinary general meeting to take a seat on the Chontales Company board. I communicated with Mr. Truran, the secretary, and asked the question, the day and time of meeting of the directors at their next board meeting, and was informed Nov. 15 at 11 o'clock. I was at the office at the day and hour appointed, and asked if there would be at the fifth ordinary meeting a retiring director, and if so did he seek re-election. I was informed that Mr. Hill retired by rotation, and would seek re-election. I gave the directors to understand that I had received letters from shareholders representing over 20,000 shares, who were anxious I should have a seat at the board. I also reminded them that in the Articles of Association the limit of directors was seven, whereas at the present time there were three. On Thursday last I received certificate of shares, and the signature of Ernest Harris, a name new to me as a director. I wrote the secretary to furnish me with a copy of the minute of the appointment of Mr. Ernest Harris; the reply was Nov. 15 last. After leaving the Chontales office a director was appointed in opposition to the wish expressed by shareholders holding over 20,000 shares so short a time previous to the annual meeting.

I am not anxious for the position, but if selected to a seat at the board I shall endeavour to ascertain how the 20,000*l.* new capital was spent, and to watch over the outlay of shareholders' money that it is not unprofitably spent. William Ball Palmer.

Exchange, Bristol, Dec. 23.

UNITED MEXICAN MINING COMPANY.

Sir,—I am at a loss to understand why Mr. Abbott should put himself to expense and trouble to congratulate the shareholders of the United Mexican Mining Company on their success. It would be rather ludicrous if all the shareholders were to do the same as he has done—send a printed circular of congratulation all round. The concern does not want any bolstering of this kind. I am sure it is distasteful to the bulk of the shareholders, and must be doubly so to the directors.—*Finsbury, Dec.* 23. J. J. G.

MONTANA MINE.

Sir,—In last week's *Mining Journal* you reproduce the substance of an article from the New York Engineering and Mining Journal of Dec. 6 relating to the Drum Lummon Mine, and refer to a report made by a Mr. Hamilton Smith, jun., in which assays of certain samples of quartz are compared with assays of samples made by a "French Engineer." Now it is well known to anyone conversant with mining that unless samples are obtained from identically the same place an approximate correspondence in the results cannot be expected, while if samples are drawn from different ground no correspondence whatever can be established. This latter observation may be very justly applied to the samples taken by Mr. Smith, since it is beyond doubt or question merely from collecting the reports on the Drum Lummon Mine that the ends of the levels from which Mr. Darlington took his samples was in course of removal at the time of his visit, now more than two years ago, and that 12,000 tons of quartz have since been taken from the reef in the roof and sides of the level during the last 12 months. In looking through Mr. Darlington's report I find no money estimate is made of any quartz in reserve, no data given for valuing such quartz, no estimate of profit likely to accrue from working the undertaking, only a statement to the effect that a large tonnage of quartz was available, that the quartz could be cheaply extracted, and that he (Mr. Darlington) entertains a very favourable opinion of the property.

A more careful or conservative report under the apparent condition of things was, probably, never drawn by a mining engineer, and one, perhaps, less open to captious and ill-perverted questions or attack. As a shareholder in the Montana Company, I have interested myself very much in our affairs. Worse management since the formation of our company cannot possibly have occurred in any enterprise of a similar kind. Faults of theft, extravagant cost paid for machinery and materials have been confessed to in the visiting directors report, but as they with the other directors have been swept away we may judiciously let the past bury itself. With regard to the employment of American experts to examine mines in preference to English engineers of repute, we may ascertain the value of this suggestion from an examination of our prospectus, and from investigating the character of the report drawn by Mr. Hamilton Smith, jun. In the prospectus extracts from three reports by American experts are given, the reports themselves bristle with estimates and statements relating to the value of the quartz in Drum Lummon reef, while the descriptive matter is so warmly coloured as to be sufficient in itself to excite hopes and expectations of a great and exceptional success. On these American reports, and on none others, our prospectus appears to have been founded. If we now turn to the report of the fourth American expert we shall find a total want of concurrence with the three brother experts referred to. We shall see that H. Smith's report—1. Is not an unbiassed or impartial report—2. It is not the report of a well-grounded, competent, practical, mining engineer—3. It chords, as it were, with the language of our prospectus, and, in order to justify the music, Mr. Smith fell upon the expedient of sampling the quartz in a short cross-cut, so as to indicate the money value of 200,000 or 300,000 tons of quartz in a solid reef some 80 ft. wide, not blocked out in any way by pioneer workings to admit of discerning poor from rich quartz.—4. Mr. Smith seems to have formulated his data for valuing the quartz by adding the assay values of small samples together without reference to the weight of quartz which such assays might represent. A more fallacious, reprehensible, and illusory method could not have been resorted to, and which is sufficiently proved by the mill results at the present time showing far higher values for the quartz than those set out in Mr. Smith's report. I regard Mr. Smith's report in itself as generally misleading, mischievous, and valueless. It is contradictory and inconsistent. "It blows hot and cold," its evident purpose being to "whitewash" the late ill-starred and ruinous management at the expense of attacking the reputation of one who probably has a wider and more persistent experience of mining in all parts of the globe than almost any other man. If American cannot offer a more satisfactory product of an exact and practical miner than Mr. Smith, jun., she might do well to avail herself of the services of some of our young men from the London School of Mines to sum up the value of her mines and mineral resources. K. F. J.

Croydon, Dec. 22.

The Genesis of the Human Mind.—Two lectures, bearing the title "Is the Human Mind of Animal Origin?" delivered at the London Institution by Mr. George John Romanes, M.A., LL.D., F.R.S., secretary of the Linnean Society, are reported in the Times. Assuming the truth of the general theory of evolution, both as regards bodily structure and mental organisation, so far as the lower animals are concerned, the lecturer explained in his opening lecture last week that even among evolutionists there was still a difference of opinion on the question whether the mind of man admitted of being regarded as the product of a natural genesis—in other words, whether the human mind was of animal origin. Considering the question first on purely *a priori* grounds, Mr. Romanes observed that if it were admitted, in accordance with his original assumption, that the process of organic and of mental evolution has been continuous throughout the whole region of life and of mind, with the one exception of the mind of man, it becomes antecedently improbable that the process of evolution should have been interrupted at its terminal phase. And, indeed, looking to the very large extent of the analogy on which this consideration is founded, he thought that the presumption raised could only be fairly counterbalanced by some very cogent and unmistakable facts of proving the virtual impossibility of animal intelligence passing into human. Next he pointed out that in the case of every individual human being there is presented to actual observation a process of gradual development, or evolution, extending from a zero level of mental life in infancy and culminating, perhaps, in genius. Moreover, so long as the human mind is passing through the lower phases of its development, it ascends through a scale of mental faculties which are *pari passu* identical with those that are presented permanently by the psychological species of the animal kingdom. Lastly, it is a matter of animal observation that in the history of the human race, as recorded in documents, traditions, antiquarian remains, and flint implements, the intelligence of the race has been subject to a steady process of gradual development. Thus, on the whole, a strong *prima facie* case is made out in favour of the view that the human mind, like everything else in organic nature, has been evolved. Leaving the *a priori* side of the question, Mr. Romanes next turned to the side of direct evidence. Here the problem that stood for investigation was that of comparing the faculties of brute with those of human intelligence, in order to ascertain the points wherein they agree or differ, for thus only can the probability be finally determined as to whether the one order of intelligence is continuous or discontinuous with the other. If we had regard to the emotional faculties of brutes we could not fail to be struck by the broad fact that the area of psychology which they cover is nearly coextensive with that which is covered by the emotional faculties of man. After showing that instincts are common to the brute and the man (although preponderating in the former), Mr. Romanes passed on to consider the faculty of reason. He maintained that although this faculty greatly preponderates in man, it is also true, in the words of Milton, that the lower animals "reason not contemptibly." The only explanation of there being any difference of opinion upon this point is, according to Mr. Romanes, because different writers use the term "reason" in different senses, it being often understood to include self-consciousness and introspective thought. But if the term were restricted to its only proper meaning there could be no question as to the rationality of brutes. This meaning is that of ratiocination, or the drawing of inferences from the perceived equality of relations—*i.e.*, of inferring results from past experience. The lecture was profusely illustrated with examples of emotional and rational actions on the part of animals.

The second lecture, which was delivered on Monday evening, was devoted to a consideration of all the points of difference between animal and human intelligence which had ever been alleged. Of these, the only valid one was held to be the high power of abstraction which was characteristic of the human mind, and which constituted the basis of all the other differences. The question, therefore, for evolutionists was to explain the growth of abstraction; and, as all psychologists were agreed that abstraction depended upon language, the whole question became resolved into this—Why had man alone of animals been gifted with the *Logos?* Now, in its essence, the *Logos* consisted in the power of predication, or of expressing a judgment; "if the brute could think 'is,' man and brute would be brothers." Was it, then, conceivable that the power of predication could have been developed by way of a natural genesis? To answer this question in the affirmative, Mr. Romanes argued that animals undoubtedly possessed in germ the faculty of making signs for the purpose of intentionally communicating feelings and ideas. The signs which they made were necessarily restricted to those of tone and gesture, except in the case of talking birds, where alone the anatomical conditions required for the uttering of articulate sounds were present. Evidence was then given to show that talking birds and children when first beginning to speak learned by special association correctly to name objects, qualities, actions, and desires. This first stage of spoken language Mr. Romanes distinguished as the denominative stage, and observed that it would certainly be exhibited by domesticated monkeys, seeking that they were both more intelligent and more imitative than birds, if any of them had happened to have been able to articulate. Now, if once the name of an object and the name of a conspicuous quality belonging to the object were used in apposition, the cupola was latent in thought and only required a further advance of abstraction itself to become an object of thought. The only requisite to this further advance was the growth of self-consciousness (which was shown to arise in children from the naming of self as an object), and thus the denominative stage of language passed into the predicative stage. Mr. Romanes concluded by arguing that given a species of anthropoid ape with the power of uttering articulate sounds, and there would be no more reason for wondering that this passage from the denominative to the predicative stage of language should have taken place in the brute than there was for wondering that it took place in the child.

Amalgamated Society of Engineers.—The returns as to employment from the various branches of the above society still show an increase in the numbers receiving out-of-work donation. The increase is, however, not more than is usual at this time of the year, and for the whole country the average of members in receipt of donation benefit is not much over 5 per cent. In the Lancashire district the condition of employment remains about stationary, and with the exception of Liverpool, Birkenhead, Barrow, and Wigan, trade generally is fairly steady. Locomotives builders and tool makers are kept well employed, and the cotton machine trade is fairly active. Taking the reports throughout the country however, there is no important district in which trade is reported as good, the general tone of the returns being either declining or bad.

STEAM-BOILER INCRUSTATION.

The general remarks concerning the incrustation and corrosion of steam-boilers, and the effects of water upon steam-boilers which Mr. Davis gives in his treatise upon this subject referred to in last week's *Mining Journal*—Treatise on Steam-Boiler Incrustation and Methods for Preventing Corrosion and the Formation of Scale. By Charles T. Davis. London: Sampson Low, Marston, Searle, and Rivington, Fleet-street—are not only of sufficient interest to reproduce but will afford readers a ready means of judging of the admirable style in which the book is written. Builders of steam generators in our days are, says Mr. Davis, commonly awarded the reputation of possessing greater experience than their predecessors. Indeed, so numerous and valuable are the improvements which have been perfected in this class of apparatus during the past two-thirds of a century, that upon a cursory view it might appear that there really remains nothing further to be accomplished in the way of improvement in the construction or care of steam-boilers. But the opposite is really the fact, and the repeated observations of each day clearly demonstrate that we fall far short of having attained a finality in devising and managing steam making apparatus.

It is true that during the past 20 years there has been made a remarkable advance in the economy of fuel used in steam-engines. The general employment of compound cylinders and surface condensers in marine engines has been productive of highly satisfactory results, for instead of being, as at present, only about 2 lbs. per 1-horse power per hour it was formerly 3½ to 4½ lbs., and with Corliss engines equally favourable results have been obtained. It is true that this has been accomplished by perceptibly diminishing the endurance of marine boilers since the introduction of surface condensers and high steam pressure. Recent experiments made by Mr. Georges Marié, engineer of the Paris and Lyon Railway, also clearly demonstrate that the consumption of fuel in good locomotives is only about 3·35 lbs. when the horse power is measured by the work done at the circumference of the driving-wheels, and 2·91 lbs. when it is measured by the indicator diagrams, the fuel being of good quality and the firing done with care. Considering that locomotives work non-condensing, while marine engines enjoy the great advantage of condensation, it will be seen that even locomotives are much more economical than is usually supposed, the general impression being that locomotives consume as much as from 4½ to 5½ lbs. of fuel per horse power per hour.

But even with this favourable showing of the best modern practice, if we carefully examine the systems commonly employed for generating steam in our steamships, our manufactories, and on our railways, and compare the results obtained under ordinary circumstances with those emanatory from carefully conducted scientific experiments, we quickly realise that there yet remains vast room for improvement in the construction and care of steam-boilers regarding the power of obtaining highly economical results from the combustion of fuel. The appalling frequency with which boilers give way without the slightest warning, and prove more or less destructive to life, limb, and property testifies powerfully in corroboration of the truth of the statement that such disastrous results can emanate only from imperfections or mismanagement, and that all the received forms of boilers and methods of construction are unsafe—even the most superior workmanship and material failing to ensure perfect security. It, therefore, devolves upon those having the responsibility of the management of steam generators to exercise strict precaution and take advantage of every aid that will lessen the liability of such accidents, and at the same time extend the period of use of steam-boilers and economise the consumption of fuel.

The majority of suppositions commonly advanced to account for the ever-occurring boiler explosions and accidents are simply based on purely hypothetical reasons, and are necessarily nonsensical. Even when vigilant precautions are observed from the moment a steam-boiler is constructed until it is finally destroyed there are numerous insidious agents perpetually at work which tend to weaken it. There is nothing from which the iron can draw sustenance for the atmosphere without and the air within the boiler, the water as it enters through the feed-pipe and containing mineral and organic substances, the aëriform fluid into which the water is converted, the sediment which is precipitated by boiling the water, the fire and the sulphurous and pyroligneous acids of the fuel are all natural enemies of the iron, and they sap its strength not only while the boiler is at work and undergoing constant strain, but in the morning before fire is started, and at noon, night, Sundays, and other holidays it is preyed upon by these and other eroding agents. Add to these destroying agents an occasional ignorant, careless, or over-confident fireman or engineer, and boiler accidents instead of being described in the newspapers as "mysterious" could often be fully explained in the two words—"natural results."

Deterioration, of course, depends greatly upon the quality of the material employed, the design, and the intelligent care exercised in the use of boilers, consequently it is not possible to accurately estimate the progress of degeneration at first sight. Experience has clearly demonstrated that the most common agent in promoting boiler explosions is corrosion, which constantly feeds upon both exterior and the interior of a boiler. External corrosion is frequently hastened by cupable negligence or ignorance, this being the case when the boiler-plate is exposed to the corroding influence of the atmosphere, or to drippings of water from defective roofs, cocks, and packings, or from other preventable causes, which, while sometimes slow, are nevertheless certain to cause the wasting away of the iron; or through the stupidity of those who set the boiler on the brickwork it may be placed in such a manner that the moisture arising from the ground and the drippings of water from the mountings above can find a lodgment in it where, concealed and neglected, it steadily feeds upon the plates and eats them away.

This kind of corrosion is commonly charged to the wear and tear of the boiler; it has nothing to do with wear and tear, but is external corrosion pure and simple, and as such is directly chargeable to carelessness. Boilers have often been seriously corroded by ashes which have been thoughtlessly allowed to remain in contact with the iron, the alkaline salts which they contain attacking the plates vigorously as soon as the ashes become damped, which they readily do by drawing from bilge-water in vessels or from the ground ashore by leaky cocks, or by deliquescence from the atmosphere. When wood has been freely used in lighting fires, or large quantities of coal have been fired at one time, it has been found that the soot in tubes and flues has become charged with pyroligneous acid, and that this combination has caused corrosion. A similar result has also been produced from the use of coal by the soot retaining fine dust of ashes, and, consequently, also sulphur acids derived from pyrites in the coal. Proper care in cleaning flues or tubes and ash-pits, and discretion in firing will, of course, obviate corrosion from the latter two causes. Flues or tubes should often be swept as soot, in addition to its liability to becoming charged with pyroligneous acid, as above noted, is a non-conductor of heat, and the short time spent in cleaning them will repay the engineer by the saving of labour in keeping up steam. In an establishment where they used but half a ton of bituminous coal per day the time of raising steam in the morning was 50 per cent. longer when the tubes were unswept for one week than when they were swept three times a week. The subject of flue cleaning is one of great importance to both engineer and proprietor. With poor tools the work is the most tedious and unsatisfactory of the attendant's duties. Not infrequently boilers are condemned as being too small when if properly cleaned they often would meet every demand.

Corrosion of the shells, tubes, flues, and braces of steam generators is usually caused by the action of saline or acid substances by oxidation and by mechanical and galvanic action. Incrustation is the deposit from the water which adheres to the inside of the shell and surrounds the tubes, flues, and braces of boilers. Water on becoming steam is separated from the impurities which it may have contained, and, as the impurities of waters commonly employed for steam generators cause damage and promote explosions by forming sediment and incrustation, and in addition increases the cost of repairs, it has, therefore, long been a problem in steam engineering to get rid of feculent matter in water which it is found necessary to

use in steam-boilers. Nearly all natural water contains more or less mineral matter in solution as well as organic and mineral matter held in suspension; the latter may be removed by filtration, but matter held in solution can only be removed from water by the agency of heat.

The amount of mineral matter held in solution by ordinary water as generally supplied to cities and found in rivers, streams, canals, and fresh water lakes varies from 10 to 40 grains per gallon of 231 cubic inches. Well and mine waters contain more, while in some instances water is used for steam-boilers containing as much as 250 grains per gallon. But a much less quantity than the latter is sufficient to cause serious inconvenience. This is easily shown. For instance, Prof. Chandler, of Columbia College, New York, in his report to the President and Directors of the New York Central Railroad on water for locomotives and boiler incrustations says—"It has been stated that as much as 1300 lbs. of incrustation have been taken from a single boiler at one time. It may seem impossible for so large a quantity of earthy matter to be deposited from waters which average only 17 grains of incrusting constituents per gallon. When it is recollected, however, what vast quantities of water pass into a locomotive boiler the possibility will be fully conceded. It was stated by a master mechanic on the road that a locomotive in running 40 miles will take in 1800 gallons of water, equivalent to 45 gallons per mile, a quantity which seems incredible. Accepting this statement as a basis for calculation we have 765 grains, or more than 1¼ oz. of earthy matter as a possible average quantity which enters the boiler per mile. Multiplying this by 1988, the average number of miles run on this section of the road by each of the 56 locomotives in one month (Dec. 1865) we have 217 lbs. of incrusting matter entering a boiler per month, or 2004 lbs. per year. Nor is this necessarily a maximum as some boilers receive the larger part of their water from stations furnishing water much below the average in purity.

With regard to the effects of water on steam-boilers, Mr. Davis explains that rainwater from not containing earthy carbonates would not form any incrustation in boilers, and the absence of salt would prevent its acting on the metal to a great extent. For stationary boilers no doubt it would answer very well for the above reasons, but being so soft it would be likely to boil too violently in locomotives, and would prime considerably.

River water containing carbonate of lime, held in solution by the presence of free carbonic acids, boils steadily, and is not likely to prime either in stationary or locomotive boilers. As the water boils the carbonic acid gradually escapes, the carbonate of lime at the same time being deposited in the insoluble state, and in many instances in a crystalline state. The slower it is deposited the more crystalline will it generally be. In locomotives it becomes as hard as rock, and is obliged to be chipped off. This incrustation also contains some sulphate of lime, sulphate of lime being less soluble in hot than in cold water, as before mentioned. This incrustation which becomes fastened on to the iron of the boiler so tightly gradually eats away a portion of the metal, for when chipped off the incrustation will have a layer of oxide of iron on the side which has been in contact with the metal. This incrustation it is commonly stated is a bad conductor of heat, and that when it is of any thickness makes a great difference in the quantity of fuel required to raise steam, and on this account it is claimed that a dirty boiler will not raise steam as quickly as a clean one. We think that the evils of incrustation have been greatly exaggerated so far as increasing the quantity of fuel and time for raising steam are concerned; and, in fact, if the effects of incrustation were limited entirely to these drawbacks, which have been continually thrust forward on almost every occasion as those deserving paramount consideration, then we would feel that engineers and inventors of anti-incrustation compounds and apparatus had been battling with an almost chimerical drawback.

There now lie before me, he continues, as I write these words, the tubes which have lately be removed from a tug-boat; some of them were bound together by one solid mass of stone-like incrustation which, when cut away, exposed portions of the tubes eaten and burned completely through, the shell of the boiler in some places was almost in the same terrible condition, being so thin after the incrustation was removed that a strong kick with the heel of a boot would crush it. The same engineer had been in charge of the boiler from the time it was built until it was removed from the boat, and had paid particular care in keeping the flues free from soot and ashes. A rigid examination of the record of the work that had been done by this boat, and a comparison of the expenses or rather the quantities of fuel which had been used, showed in the three years that the boat had been running only a small additional consumption of coal in the latter six months over that of the first six months of the period. It is difficult to conceive that a boiler could be in a worse condition so far as incrustation is concerned, yet we find the increased consumption of fuel arising therefrom to be insignificant when compared to the loss caused by the destruction of the boiler, and the still greater extirpation that was momentarily impending to life and property.

The economy of fuel in generating steam is, of course, commendable, and, as we have before stated, should be constantly kept in view; but the tendency of the times is too often to lose sight of the greater evils in producing steam, and place undue importance upon those of lesser moment. To speak plainly, for there is no excuse for mincing language in such matters, many persons having the care of boilers seem to think that their whole duty is performed if they can keep the engines moving, and have them develope the required power at a minimum expense for fuel. The plan would be good enough if it would only last, but suddenly there comes a suspicion, even to the most obtuse engineer, that even though there is no remarkable increase in the consumption of fuel that it would be expedient to make a thorough examination of the interior of the boiler under his charge, and then he discovers that extensive repairs are necessary, and oftentimes that a new boiler is needed. The great wonder is not that there are so many boiler explosions, but that there are so few.

But to return to our point of digression from which we have strayed further than was our intention. As the water boils and the steam is used more water is continually added to the boiler to supply the place of that converted into steam. The carbonate and sulphate of lime being deposited during the process of boiling, the proportion of these in the water in the boiler does not increase to any extent, but such is not the case with the chloride of sodium (common salt). This being so very soluble remains in solution, and is, of course, gradually increasing in the water of the boiler until it is strong enough to set up a galvanic action between the metals where brass or copper comes in contact with the iron, as cocks, &c. The iron is the metal attacked, and being gradually eaten away around the brass or copper gives rise to leaks; the incrustation of carbonate and sulphate of lime having the same effect only in a less degree. The accumulation of solid matters in boilers in this way is incredible to some people. Of course blowing off the steam from the boilers removes the sediment which is not so crystalline and which is not fastened to the boiler, and also the salt.

Well waters.—Those wells which yield hard water act upon boilers in exactly the same manner as river water; but, from the fact of their containing more solid matter per gallon, an equal quantity of these waters would yield a larger incrustation than river water. The water from the chalk in the London basin which contained the soda salts answers well for stationary boilers if the solution of salts is not allowed to get too strong before blowing off, otherwise they would set up galvanic action. The carbonate of soda already present renders it very soft, and the small quantity of earthy carbonates are deposited as a fine powder. This water will not answer for locomotives, as it boils so violently that it primes considerably, and in ascending a hill wholesale, so much so that the engines run short of water much sooner than they ought to, and having to keep constantly adding fresh water to the boiler to take the place of that blown out steam cannot be properly kept up. Well water containing a quantity of soluble salts acts upon the brass and copper to such an extent that boilers are almost covered in front with incrustations of salt; the boilers, of course, are greatly injured and rapidly destroyed.

Sea water acts in the same way on iron boilers, but being a stronger solution it requires no concentration before it begins to take effect, and must be frequently blown off.

THE FUTURE OF THE COPPER TRADE—No. I.

Notwithstanding the pessimist view of certain consumers of copper—with whom, perhaps, the wish is father to the thought—that at no distant date the price of that metal will be no higher than that of lead, no doubt is entertained by capitalists who interest themselves in mining enterprise that, when a favourable district is chosen and the mines wrought are properly managed, there are still ample facilities for realising satisfactory profits, and that, too, without exorbitant outlay. The enormous cupriferous wealth of the Lake Superior district has long been known to the readers of the *Mining Journal*, and, although the depression in the price of metals has, during the last few years, placed the balance, even in the Michigan mines, on the wrong side of the account, attention is again being directed to them, so that an outline of the general historical sketch which introduces the last issued annual report of the Commissioners of Mineral Statistics of the State of Michigan will not be unacceptable. It is remarked that, with the exception of Ontario, the borders of Michigan are washed by the waters of five great lakes, affording an extent of navigation from the Atlantic to the remotest shores of Lake Superior, and giving to the State an advantage no other inland State can hope to rival. At its south-eastern extremity the State is touched by the waters of Lake Erie. This body of water is 220 miles in length, 48 in width, has a maximum depth of about 204 ft., and is about 564 ft. high above tide water. The Detroit river connects this lake with Lake St. Clare, which is 18 miles long, 22 broad, 24 ft. deep, and 570 ft. above the sea, and thence by the St. Clare river we pass into Lake Huron, which forms mainly the eastern boundary of the State, separating it from Ontario. This lake is 250 miles long, has an average breadth of about 100 miles, a depth of about 900 ft., and is 574 ft. above high water mark. The straits of Mackinaw join it with Lake Michigan, which is 320 miles long, 80 wide, 840 ft. deep, and 587 ft. above high water. The Green Bay of this lake, so important to the shipping interests of the upper peninsula, is 100 miles in length, 20 in breadth, and sufficiently deep for all purposes of navigation. If instead of passing westward, through the beautiful straits of Mackinaw, we continue northward from Lake Huron through the channels of the St. Marie we enter the south-eastern extremity of Lake Superior, the southern shore of which forms the boundary of the mineral peninsula, the northern limit of the State. It is 350 miles long, 100 broad, 878 ft. deep, and 627 ft. above high water. The waters of these lakes abound in fish, including choice varieties of trout. The shores are indented with numerous bays and harbours for the mooring of vessels, and formation of wharves and quays, while the lakes themselves are fed by innumerable streams, many of which reach far into the interior.

The entire superficial area of these lakes is not less than 100,000 square miles, and the easy access thus afforded by this grand way to all parts of the State has not a little aided in its development. The immense forests of pine trees are readily attacked, the logs being floated down the streams to the mills on the lake shores, where they are cut into lumber and loaded into vessels for transport. The ores in the northern peninsula, which are now so extensively mined, would be of little or no value were this chain of navigable waters to be removed and dry land to take their place. The broad deep bodies of water are great modifiers of the temperature of the climate; they are reservoirs for storing up the summer's heat, which is slowly eliminated during the winter, tempering the bitter blasts which sweep over their surface. From this cause the western border of Michigan has become known as the fruit belt—a region where many of the choicest fruits are cultivated. Along the border of the lake, and for some distance into the interior, the peach is successfully cultivated—a fruit which finds a ready market at Chicago. The prosperous condition of Michigan, due to its extensive coast line of navigable waters, its temperate climate, its ample rain fall, due to the modifying influence of the great bodies of water which surround its borders, and the forests of timber which still dot its surface, the fertility of its soil, the variety of its products, the value of its timber, the wonderful richness of its minerals, and the law-abiding spirit of its people, is rapidly exciting the attention of the civilised world. It is the fulfilment of the prophecies made by the early French travellers who journeyed through this region when it was only occupied by hordes of wandering savages, a few missionaries, and fur traders. The country of Lower Michigan is represented by these early travellers as bordered with a dense growth of trees, around whose enormous trunks grape vines are clustered. The interior is described as swelling into gentle hills and indulations, covered with forests of heavy timber or groves of oak, or expanding into rich prairies. In contrast to this glowing description was that made by the Government surveyors, who pronounced the State a nearly worthless region not fit for settlement.

In 1815 the Government surveyor wrote to the effect that country was low, wet, and abounding in swamps, and the intermediate space between the lakes and swamps, with few exceptions poor, barren, sandy loam land, on which scarcely any vegetation could grow except small scrubby oaks. It was described as a peculiarity of the country that many of the marshes were covered by a thin sward of grass, under which was very thin mud or water, which on pressure of the foot sinks from 6 to 18 in. The report closes by saying that, taking the country altogether, there would not be more than one acre out of a hundred if there were one out of a thousand that would in any case admit of cultivation. The French were the earliest to settle in the country, James Marguette and Claud Dublon founding a mission at Sault de Ste. Marie in 1668. As early as 1535, however, the French had landed at Montreal, and taken possession of the country in the name of the King of France, and in 1540 a settlement was made in the country. In 1608 Quebec was founded by a company, whose aim was to engage in the fur trade, which seems to have been the main cause of French colonisation in the North-West. The first expeditions in 1535 and 1540 sought only for gold and silver, which not being found it is probable that this country would never have been peopled by this nation had it not been for the fur trade. The proseliting zeal of the Jesuits also helped to bring about this end. A charter was granted to a company by the King of France in 1627, conferring extensive privileges to enable it to colonise the American French possessions, and Champion was appointed governor of the colony. In 1629 the English fleet appeared before Quebec, and the entire country was surrendered to the British Crown, but in 1632 the French title was restored to it by the treaty of St. Germain. A college of the order of Jesuits was founded at Quebec in 1655, and through the influence of these men much was done towards developing the fur trade of the country, and gaining a better knowledge of it. Religious institutions were founded in Canada, for the double purpose of Christianising the Indians and impressing upon their savage minds, along with the symbols and rites of the Church the emblems of French sovereignty.

As in the fur trade the greatest prospect of fortune lay, so little attention was given to agriculture or kindred arts. The Algonquin tribes of Indians were faithful to the French, but the Iriquois were perpetual enemies. The English also held the sea shore, and between them and the French settlements there existed a constant jealousy. The timely arrival of a reinforcement of 400 troops from France saved the colonists from total annihilation at the hands of the Iriquois. In 1664 the company was dissolved, its franchise surrendered to the Crown, and an attempt made to form a more perfect government. Forts were erected, and in 1688, at the time of the settlement of Sault de Ste. Marie, before mentioned, the general affairs of the country were much improved, and soon after ports were established on the shores of the great lakes. In May, 1671, a grand council with the Indians was held, when formal possession of the country was taken in the name of the King of France. A settlement was made the same year at Michilimackinac, which soon grew, and continued for about 100 years one of the most important parts on the chain of great lakes, and being placed at one of the most conspicuous points in the great avenues of commerce between St. Lawrence and the Mississippi, was a favourite rendezvous of traders. A Jesuit school was established, and on the north shore the mission of St. Ignace was founded, but the savages, in spite of all efforts, resisted, and all that the savage mind could be brought to was to permit the priests to administer the sacrament to young children and aged Indians. A fort and chapel was built at the Sault de Ste. Marie, where a permanent settlement of Indians existed, who obtained their living by catching the fish which abounded in the St. Marie river. There was also a goldsmith here who made candlesticks, bracelets, and other trinkets from copper found on the shores of Lake Superior. A trading post was established at Green Bay in 1670, and at an early period at St. Joseph, but although visited no settlement was made at Detroit, although the spot was spoken of as having special advantages.

The English colonists on the Atlantic Coast soon became rivals of the French in the fur trade, and extended their influence and traffic far into the interior. Having built up an extensive trade with the Indians in the North-Western lake regions, they began to look upon Detroit as a most desirable place for a station, but the French, becoming aware of it, determined to forestall them; they, therefore, fitted out an expedition in 1701, and left Montreal with a body of 100 men, a Jesuit missionary, and the necessary means of establishing a permanent colony, arriving at Detroit in July. Previous to setting out with the expedition one of the most imposing councils ever held in the country was called together. The respective claims of the two nations to the country were discussed, their relations to the Indian tribes, complaints and wishes of all parties present were canvassed and weighed. The Iroquois claimed possession of the country, protested against the French occupation, stating that they had already denied the privilege to the English. The reply of the French was to the effect that the country belonged to the King of France, that they had decided on making the settlement, and would carry it into effect. No serious outbreak occurred for 11 years, when in May, 1712, an attack was made on the fort by tribe Foxer, who were incited thereto by the English; but with the aid of friendly tribes the French defeated them. In 1721 Peter Francis Xavier de Charlevoix visited the country, and in his account of it published in Paris in 1744 he speaks very highly of the country, admiring the fertility of the soil, the forests of timber, the valuable minerals, and navigable waters. In 1763 the Michilimackinac post was utterly destroyed by the Indians.

LOCKS, AND LOCK PICKING.

An interesting account of an interview with a lock expert is given in the New York Iron Age, and may be useful to inventors as suggesting a direction in which they may profitably employ their ingenuity. "Locks?"—"Locks won't keep burglars out. Why, I can open any kind of lock that has ever been invented, without key or combination." The speaker was a close-shaved, clean-cut, penetrating-looking man. He stood in a locksmith's shop on Four and One-Half-street, Washington, dangling the dial of a combination lock on the end of a bent wire. "They open if he looks at 'em," said a youth, who stood by interestedly examining the bits of broken lock, old keys, drills, and odds and ends of wire, brass, and steel which were scattered about the shop. The sign in front of the door read, "Practical Locksmith and Safe-Opener."

"Do you make a practice of breaking open safes?" asked the interviewer.—"I open safes when nobody else can," replied the smith, giving the scribe a keen, enquiring look which might have opened him had he been a lock. "That is, I open safes when the locks are out of order or the combinations lost. Sometimes a man will oil the lock of his safe and it gets gummed up so that the tumblers won't work, and he can't get it open. Some men are forgetful and lose their combination. Safes are sold at sheriff's sale sometimes, and the owner being mad, won't give up the combination. When anything of that kind happens they send for me." "Do you blow them open?"—"No. If the lock is broken so that it won't work I drill a little hole alongside the dial, and pick the lock with a small bit of wire. If the lock is all right, only the combination is lost, I go to work to find it and don't deface the safe at all. It takes me from three seconds to six hours to open a safe, according to the kind and the method I employ."

"But how can you find the combination? Does it not take a long time?" "By testing. As to the time, it depends upon circumstances. If I know the man who set the combination I can find it in a very few minutes. If I don't it takes longer. You see, I study the character of the man, and if I know him pretty well I can strike his combination through his character. When a stranger comes to me to say he has lost his combination I make a study of him, and in nine cases out of ten I can hit it the second or third trial. But if he did not set the combination himself it is more difficult. Then I study the lock instead of the man, and I am sure to get it open in a few hours. Oh, no? It wouldn't do to tell you how. Safe-openers are dangerous in a community. They are always watched by the police. They keep an eye on me at all time. I have them trying my door all hours of the night, and there's generally one somewhere around. No, I couldn't teach you to open safes. But you might not find it easy to learn. There is a kind of association between me and locks—an understanding, as it were. We have the same way of thinking." "Could you open a burglar-proof time lock?" asked the scribe." "I can open in five or six hours the best lock that was ever made. These little office safes I wouldn't put that much time on. They don't pay enough. I just take a hammer, and break the knob off, and can get into the safe in about three seconds."

"What do you get for opening a safe?"—"For a little three-second safe I get $10. For large safes, like they have in banks and brokers' offices, and where they don't want the lock injured, I get $250." "Could you open the great safe at the United States Treasury?"—"Easily. I could get rid of the time lock and everything in six or seven hours, and wouldn't make any particular fuss about it, either, No safe was ever made but it had some weak point, known to the maker, so he could get into it in case the lock should fail to respond. If there wasn't, they would have to break the concern all to pieces if the lock broke. Now, I know where to find these weak places. I can strike within ¼ in. of it every time. It is generally covered over by a thin sheet of steel or boiler iron, and by cutting away a block 3 or 4 in., which is easily done, I could drill into the best safe that has ever been made. It would not be any trouble for burglars to get into the Treasury safe, if they understood locks as I do."

"Has your knowledge of locks ever got you into any trouble with the police?"—"No, not seriously, though, as I say, they always watch me. Down in Oil City, though I created quite an alarm one night, and came near being captured as a burglar. Some fellows got to tampering with the safe in a large hardware store, and somehow got the combination changed, so that no one knew how to open it. The proprietor sent for me, and I told him I could open it, but as I was quite busy I should have to wait until evening. I closed my shop a little after dark, and went over to the store, and got to work on the job. I had been working a couple of hours when somebody banged at the door, and called for me to surrender without resistance if I did not want to be shot. The proprietor was, fortunately, in the store at the time, and opened the door. There was a squad of police armed, and the house was completely surrounded, so I could not escape. The patrolman had seen me at work on the safe, and gone off and roused the town, and the whole police force had been called out to surround the building. The proprietor explained, and I went on with my job." "But locks don't do much good against experts," he continued. "A gang of burglars would find no trouble in robbing the Treasury. It is strange that they never attempted it. As to ordinary locks, I could take an ordinary case-knife or a piece of stiff wire, and open every door on the avenue from the Capitol to the Treasury. And it would not take me much longer than it would to walk that distance. No door would take me longer than a couple of seconds. I can open any trunk with simply a little tap with a hammer, and will not injure the lock in the least. If you forget your combination come in."

COPPER, TIN, AND LEAD.—Messrs. FRY, JAMES, and Co. (Dec. 23) write:—Copper fell again in price, up to a few days ago, until 47*l.* 10*s.* per ton cash was accepted for g.o.b. Chilian, but in the last four days there has been a total recovery of fully 1*l.* per ton from the lowest. Other kinds of copper sell slowly. Tin has not been largely dealt in, but is stronger than it was a week ago by fully 20*s.* a ton. Lead is rather less offered, and is 5*s.* to 7*s.* 6*d.* per ton dearer in consequence.

Meetings of Public Companies.

VAN MINING COMPANY.

The statutory meeting of shareholders was held at the offices of the company, Dashwood House, on Monday,

Mr. Charles Clark in the chair.

Mr. W. J. Lavington (the secretary) read the notice calling the meeting.

The Chairman said: Gentlemen, this being merely a statutory meeting, in order to comply with the conditions of the Act of Parliament, there is no business, properly speaking, to bring before you, but it will be interesting to the shareholders who are present to know that the whole of the shares in the new company were subscribed for and duly allotted, and that the payments so far have been made in accordance with the demands. The new company began operations on Nov. 1, and we have before us the cost-sheet, for which we have just passed a cheque for the month ending Nov. 29. The secretary will presently read a report from Capt. Williams. I may say as far as the labour goes (we have not yet received the particulars of the merchants' bills) the costs have been in accordance with the programme laid before the shareholders, and within the amount which we expected would be spent. The subscribers to the Memorandum of Association appointed the liquidators, Mr. Alington, Mr. Boughton-Knight, and myself, as directors of the new company, and the new directors, under the power given them by the Articles of Association, added to their number Mr. J. Y. Watson and Mr. Catling, who are here to-day. After that Mr. Alington and Mr. Boughton-Knight insisted on sending in their resignation, which they had said they would do; and although we hoped they would remain with us for some time at least, we found their determination was fixed, and there was no alternative but to accept their resignation, which we did with regret. The board now consists of the four gentlemen you see before you to-day. I can only say on their behalf that every effort will be made between this period and that of the next meeting to carry on the business prudently, economically, and satisfactorily. I will now ask the secretary to read the report which has been received from the mine.

Mr. Lavington read the report as follows:—

Dec. 20.—As instructed by you I made a formal start on Saturday, Nov. 1, and on the following Monday morning we commenced work. Edwards' shaft is sunk 7 fms. 4 ft. below the 120. I am pleased to say that the men have nearly attained the speed of 9 ft. per week in sinking, which I call good work: this shaft is let to 10 men to sink to the 150, for the sum of 330*l.*, timbering included. Owing to a fatal accident to one of the shaftmen by falling off the kibble when coming up from firing, the Government Inspector (Dr. Foster) has strongly urged upon us the importance of communicating the 120 cross-cut with the shaft, and in order to do this I am under the necessity of suspending the sinking for about three weeks, and use the shaftmen and rock-drills for the purpose, this being the cheapest and most expeditious way of doing it. As soon as communication is effected we shall resume the sinking of the shaft. The 170 winze, below the 120 west, is sunk to the 135, and a cross-cut driven south 9 ft., through a very kindly and promising lode, yielding lead in paying quantities. We are now apparently entering the bar of ground between the main lode and the lead-bearing ground seen in the long cross-cut at the 120. This bar in the 120 is 23 ft. wide, and unproductive, but in the 135, so far as seen, is full of streaks of lead ore, thus showing an improvement at the lower level. So far, I must say I am very pleased indeed with the 135. We have yet made no trial in the main lode at this level.—Stoping: We have six stopes at work, with 27 men, one in the back of the 75 west, three in the back of the 90, and two in the back of the 105, which are worth on the average about 32 cwts. of lead ore per cubic fathom. We are attending to the keeping of levels, winzes, &c., in proper working order. —Surface: The dressing of lead ore is done by contract at 20s. per ton for crop and halvans, and I hope in a short time to do it for still less. We have to-day 103 tons of dressed lead in the bin, besides about 40 tons of lead and about 100 tons of blende in the halvans or tailings, which we shall dress before this quarter is up. The mine and all machinery are also furnished with the necessary working stock. I am doing as much as I possibly can with water-power, but an accident which happened to some of our gearing has prevented my using the wheel for the past fortnight. We have to-day received from the foundry the necessary castings for the repair, and we shall be on again with the water-power in a couple of days. The machinery is in good order. I shall have all our boilers ready for thorough inspection in the Christmas holidays.—Farm: Our farm is in very good order. We have done our winter sowing, and commenced ploughing for spring. We have purchased half-a-dozen bullocks and nearly completed the erection of a shed to house them. We have also let the wintering of the land for sheep, which will bring in about 25*l.* In conclusion, I am glad to say that our prospects for the future are very encouraging, and, as I said before, I am very well satisfied with the 135 so far, and I see no reason to doubt my former expressed opinion, that we shall yet see bright and prosperous days.—W. H. Williams.

The Chairman: To that I have only to add that we have to-day sent instructions to have 100 tons of lead sampled for immediate sale. We had thought of keeping a quantity, but on consideration we have thought it better in the interests of the shareholders to have it sold. The cost-sheet on the old mine account is 260*l.*, and on the new mine account 140*l.*; that is, from Nov. 1 to Nov. 29, payable next Saturday. That is, as I have said, without the merchants' bills.

A Shareholder: You cannot say what the actual cost is?—Mr. Lavington: No; not until we get the merchants' bills.

Mr. Gatty said he thought the directors were to be appointed by the shareholders. He thought it would have been more in accordance with the Articles of Association if the appointment of directors had been left to this statutory meeting.

Mr. Lavington read the clause in the Articles of Association. This clause gave power to the directors to elect other directors to make up the board to the number required.

Mr. Geo. Batters said the directors thought it a good thing to secure the services of Mr. J. Y. Watson as a director, as that gentleman had no knowledge whatever of any antecedents in the management. Mr. Clark possessed a previous knowledge of the business, and he was sure the interests of the shareholders could not have been entrusted to better hands. If the programme were carried out as to keeping the expenses down, and working on a part of the mine so as to show that the promises of the agent that he could work at a profit could be carried out, and the mine worked at a profit; he thought that in these times it was an achievement which would be highly creditable to the company. He might state that it was the intention of the Chairman to visit the mine very shortly, and see that the programme for the working was carried out as far as the power of the directors went.

After a short discussion on some minor topics, of no public interest, the proceedings closed with a vote of thanks to the Chairman and directors.

ANGLO-AMERICAN BRUSH ELECTRIC LIGHT COMPANY.

An extraordinary general meeting of shareholders was held at the offices of the company, Belvedere-road, on Monday,

Mr. J. S. Sellon in the chair.

Mr. E. Garcke (secretary) read the notice convening the meeting.

The report stated that the meeting was called to consider and if desirable to pass a resolution ratifying the provisional agreements entered into with the Great Western Electric Light and Power Company and the Brush Midland Electric Light and Power Company, and to authorise an increase of capital to the amount dependent upon the number of fully-paid shares in these companies surrendered to the corporation, such increase, however, not to exceed in the aggregate 6695 fully-paid 5*l.* shares in the capital of the corporation. It had been found advisable to take up the position of contractors, and not confine their operations as formerly merely to the manufacture of electrical apparatus, and this being the case it is desirable that practically the only limitations to the power of the corporation to undertake work in part of the United Kingdom should be removed by the absorption of the Great Western and Midland Companies. The terms of purchase were in the case of the Great Western Company that the corporation shall issue shares in the proportion of three 5*l.* fully-paid shares for every twenty 2*l.* 10s. shares, the shareholders in the Great Western Company receiving in addition out of the available funds of that company 10s. per share in cash. In the case of the Midland Company the terms are that the corporation shall issue shares in the proportion of four fully-paid 5*l.* shares for every twenty-seven 2*l.* 10s. shares. If this arrangement is adopted it would involve an increase in the share capital of 33,475*l.*, of which 19,362*l.* will be distributed to the shareholders in the Great Western Company, and 14,113*l.* to those in the Midland Company. For this increase of capital the corporation will obtain not only a return of the licenses for 23 counties in England and Wales granted to these companies, but also the benefit of the operations of these companies during the past two years; also tangible assets, including cash, plant, land, buildings, &c., amounting in the aggregate to about 28,500*l.* of which 41 0*l.* consists of arrears of calls. If these calls are all paid the consideration which the corporation will have given for the licenses and goodwill may be estimated as not exceeding about 5000*l.* in shares.

The Chairman expressed regret that Lord Thurlow was not present. He stated that as the matters were fully dealt with in the circular which had been issued to them his duties would be very simple. He proposed moving the resolution, and then answering any questions they might put to him rather than going over the same ground as that in the circular. He asked the shareholders to accept as a matter of trust the policy which they had laid down, and were endeavouring to carry out. He referred to the slow recognition the merits of electric lighting had received in the past at the hands of the public, and to the attempts at legislation with regard to it, which he said had almost taken the heart out of those who wished for its success. It was, however, no good to moralise on the past, what they must do was look to the future. Concentration of energy, and a uniform plan of management were essential to its success. He hoped they would be able to carry out their policy untrammelled in any way. He had a large number of proxies from shareholders who approved of the plan. The scheme had had the best consideration, and they could confidently recommend them to accept the agreements as satisfactory. He then moved:—"That the provisional agreements entered into between the corporation and the Great Western Electric Light and Power Company (Limited), and the Brush Midland Electric Light and Power Company (Limited and Reduced), dated respectively Nov. 26, 1884, and Nov. 29, 1884, and submitted to the meeting, be, and the same are hereby sanctioned, adopted, and confirmed, and that the directors be authorised to carry the same into effect respectively, with or without modifications, and for that purpose to enter into and execute all necessary deeds and documents, and to issue not exceeding 6695 fully-paid 5*l.* shares in the capital of the corporation, such shares to be numbered from 40,701."—Mr. Gibbs seconded the motion.

Mr. Means wanted to know why the present meeting had been called, when in a few weeks' time they would be having their general meeting, when the accounts of the company would be presented. He contended that without those accounts they had insufficient information to agree to the resolution. He also went at some length into the value of the shares of the two companies referred to, which, he stated, were valueless until these negociations were entered upon, and endeavoured to show that the proposed plan was not placed upon a proper basis. He proposed that the meeting should be postponed.

The Chairman explained that the meeting had been called because it was thought that these matters should be settled before the close of the year, and that when they presented the accounts at the general meeting they might be able to give the exact position of the corporation. With regard to the value of shares they did not rely on the Stock Exchange quotations at all. The valuation was made on a fair and equitable basis.—The resolution was then adopted.

NEW CHILE GOLD COMPANY.

The first ordinary general meeting of shareholders to consider and if desirable pass resolutions abolishing the present Articles of Association of the company, and adopting in lieu thereof those in the hands of the shareholders, was held at the Cannon-street Hotel, on Monday,—Mr. Hugh Watt in the chair.

Mr. Brown read the notice convening the meeting.

The Chairman said as they were aware this was the first statutory meeting of the company, and he congratulated the shareholders on the result of the reconstitution. The amount received to-day—say, 18,000*l.* to 19,000*l.*—represented as nearly as possible within 5 per cent. on the entire British capital invested in this mine. The vendors to date had paid upon about 50,000 shares, and he believed from a communication made to him that the money was on the way for a further 3,000. The representatives of the vendors had also advised him to be fully satisfied that 60,000 further shares will be paid upon. That would leave them a capital of nearly 25,000*l.* He was also advised by friends that a further sum of 3000*l.* would be received, making 27,000*l.* in all. Of course, this would amount in excess of the entire capital, but a number of his friends had promised to pay in full the 5s. a share to account for difference. This sum he considered as sufficient without further calls to carry on the business of the company. This was owing mainly to the favourable advices received from the mine. He had received some advices from the mine, extracts of which he read. The concensus of opinion to be gathered from these reports was that the Chile Mine was the most valuable one in Venezuela, and all that was wanted to place it in a dividend-paying condition was that the same amount of energy should be put forth at the mine as had been exerted by the committee at home. As far as he could judge, the conduct of the manager was entirely satisfactory. In No. 1 shaft operations had been suspended, and that had had the effect of curtailing the expenses by about 1000*l.* per month. With regard to the debts of the old company he found that nearly one-half of them had been already disbursed. He again congratulated them on having saved the Chile Mine, which contained the truest fissure vein and most continuous quartz-bearing vein in Venezuela.

The Articles of Association were then gone through and agreed to with certain verbal alterations.

After a prolonged discussion the following gentlemen were elected to constitute the new board—Messrs. Hugh Watt, Slade, C. Higgins, and H. G. Gray.

It was resolved that the election of the fifth director be left in the hands of the board, and that they fill up the vacancy on or before June 30, 1885.

Mr. Hugh Watt, in returning thanks for the expression of their confidence in him, stated that there was yet much to be done in connection with the new company.

It was proposed by Mr. Lysle, seconded, and carried, that the remuneration of the directors be 250*l.* for the next six months, and that a meeting should be called about the expiration of that time, when the further consideration of the question would be discussed.

Chontales.—The directors' report and statement of accounts prepared for the forthcoming meeting have been issued to the shareholders. The accounts show—mine costs, 4008*l.* 12s. 2d.; costs in London, 590*l.* 5s. 4d., and 715*l.* 17s. 6d. written off for depreciation on plant and machinery. The 1659 ozs. of gold sold realised 4807*l.* 2s. 6d., and the balance being loss on the 12 months' working, is 46*l.* 19s. 9d. The total debit against the mine is 6730*l.* 19s. 6d. The manager does not recommend the eastern ground at the Consuelo Mine as a speculation, unless they decided to drive on the main level (say) 800 ft. east of the present end, or about the same distance as the main level was driven in the western ground before it came into the rich shoot of gold. If they found the shoot in the Consuelito equal to that in Consuelo they would soon pay back the capital subscribed for driving the level. He did not think it advisable to do anything more at Consuelo, or to go to any cost preparatory for working the Consuelito Mine unless a capital could be raised so as to give the mine a fair chance of the discovery of another shoot. He calculates the cost for driving the Consuelo main level 1000 ft. into the Consuelito Mine would be about 5000*l.*, and take two years to complete the work.

MINING AND METALLURGICAL PATENTS.

Supplied by Mr. Ernest de Pass, of Fleet-street, E.C., Fellow of the Institute of Patent Agents.

Amongst recent applications for patents, in which the readers of the *Mining Journal* are more immediately interested, are the following:—

S. W. Smith, Coventry, No. 16,493, Rolling old rails of railways into flat plates of iron or steel.—A. V. Rose and G. F. Rose, London, No. 16,498, Portable electric lamps.—J. Clayton, Manchester, No. 16,500, Apparatus for separating metallic substances from wheat and other grain.—A. Emley and J. D. Morrison, jun., London, No. 16,527, Means for locking the nuts of screw-bolts, specially applicable to the nuts of railway fish-bolts.—G. Allan and H. M. Gregory, Staffordshire, No. 16,531, Manufacture of weldless chain.—S. Johnston, United States, No. 16,545, Method of finishing metal castings.—E. Jordan, New York, No. 16,547, Forming and seaming sheet-metal tubes.—B. Moebius, Mexico, No. 16,554, Apparatus and process for the electrolytical separation and deposition of metals.—E. P. Burd, Teddington, Middlesex, No. 16,581, Fish-plates and chair for fastening railway metals.—J. Siddaway, London, No. 16,591, Machinery or apparatus for the manufacture of socket spades and shovels.—J. Touissant, London, No. 16,594, Method of preventing air holes forming in metals during castings.—F. H. J. Trier, London, No. 16,630, Apparatus or machinery for dressing, shaping, and moulding stone.—G. J. Rhodes, London, No. 16,631, Apparatus or appliances to be used in stencilling for enamelled iron.

The following selected specifications have been recently published, and are now open to inspection and opposition:—

Coating and Galvanising Sheet Iron.—W. A. Jones, London, No. 1466.—The sheets are fed between a pair of conical rollers into a drying chamber, from which they are guided into a bath of semi-hexagon shape, afterwards passing out through rollers and heating operators.

Selling and Bevelling Angle, T, and other Metal Bars for Flanging Plates.—N. Arthur, Leith, No. 2127.—Refers to a machine in which are mounted a series of rollers relatively adjustable whereby different angles or bevels may be given to different parts of the bar or plate operated upon.

Coupling for Shafting.—R. C. Parsons, Leeds, No. 2487.—For the connection of shafts that are somewhat out of line with each other, the respective coupling discs are attached to each other by bolts that may take up an oblique position relatively to the coupling discs.

Obtaining Aluminium Bronze.—A. Zidiarski, London, No. 3090.—Melted cryolite or other compound of aluminium and a suitable flux are subjected to a current of electricity in the presence of copper, brass, or other metals.

Casting Ingots of Steel.—J. D. Ellis, Rotherham, No. 3501.—The feed tubes of the moulds are heated and maintained at the required temperature by means of heating flues or furnaces.

Iron or Steel Castings.—J. D. Ellis, Rotherham, No. 4477.—For the purpose of obtaining sound castings a feed tube fired on the top of the mould is maintained at such a temperature as will keep the head of metal within the same in a molten state until the metal in the mould has become solidified.

Separating Small Portions or Particles of Iron or Steel from other Materials.—C. F. Hilder, London, No. 10,371.—By means of electro-magnets, the coils of which are connected with a generator of electricity, provided with a contact making and breaking devices.

Metallic Lathing.—W. B. Lake, London No. 13,947 (a communication from B. Scarles, Clinton, Mass., U.S.A.).—Relates to that class of metallic lathing in which wire-cloth is employed for receiving the plastering, and consists in a certain construction and arrangement of the parts.

Gold and Silver.—Messrs. Pixley and Abell (Dec. 18) write—The quotations for bullion are—Bar gold, fine, 77s. 9d. per ounce standard; bar gold, containing 23 dwts. silver, 77s. 10½d. per ounce standard; bar silver, fine, 49¼d. per ounce standard, firm: bar silver, containing 5 grs. gold, 49⅜d. per ounce standard; cake silver, 53⅛d. per ounce; Mexican dollars, 48⅝d. per ounce; quicksilver, 6*l.* 15s. to 6*l.* 15s. Discount, 3 per cent.

Mining Correspondence.

BRITISH MINES.

D'ERESBY.—J. Roberts, W. Sandoe, Dec. 22: We have just received some of the things from the foundry, and we shall use every effort to get the pumps to work by the end of the week

DEVON GREAT CONSOLS.—I. Richards, Dec. 23: Wheal Maria: During the past month the eastern shaft, on the Capel Tor lode, has been sunk 1 ft. only, in consequence of an influx of water. Preparations are now being made for draining same by the application of pumping machinery, which is being got on with as fast as possible.—Wheal Emma: Railway Shaft—New South Lode: Bray's cross-cut south, at the 220, has been driven 1 fm. 3 ft. 6 in., and the south part of the lode has been intersected, and cut through, proving 2 ft wide, composed principally of capel, with small quantities of copper and mundic ores. The 220 west, on this south part of lode, has been driven 4 ft. 3 in., the lode proving of same character as that at the point of intersection.

Watson's: The engine-shaft has been sunk 2 fms. 2 ft. 3 in., making it 5 fms. 1 ft. 6 in. below the 112, the ground proving of a congenial character for the production of mineral and favourable for progress. The 112, west of the engine-shaft, has been driven 1 fm. 3 ft. 9 in., the lode proving from 4 to 5 ft. wide, and yielding 3 tons of copper and mundic ores per fathom, and its general character of a most promising nature. Lennard's winze, in bottom of the 100, west of engine-shaft, has been sunk 1 fm. 1 ft. 6 in., the lode proving 3 ft. wide, of a promising character, and yielding a little saving work of copper ore. The western shaft has been sunk 1 fm. 3 ft., making the total depth 10 fms. 0 ft. 6 in. below the 32, the ground being favourable for exploration, and congenial for the production of mineral. Rutter's rise, in the back of the 32, east of the western shaft, has been risen 2 fms. 5 ft., the lode proving from 4 to 5 ft. wide, of a promising character, and yielding a little saving work for copper and mundic ores.

DRAKEWALLS.—Thomas Gregory, Dec. 22: The shaftmen are engaged in sending down rods, pumps, &c; consequently, there is no change to notice in the bottom of the engine shaft, the lode in which is looking fairly well for tin ore. The main tin branches in the deep adit end, east of Matthews' shaft, and going away into new or unexplored ground, are producing good work for tin and arsenical mundic; here we are opening paying ground. The 50 cross-cut north to all of the great north lodes is progressing favourably in speedy ground. No other change to notice. Engine and pitwork all working well.

EAST WHEAL LOVELL.—Thomas Quentrall, Dec. 23: There is no particular change in the 13 west since my last report. The quality of the tinstuff from the stope in the back of the 13 west has rather improved. We have commenced a cross-cut south from the 13, which will intersect the south lode 7 fathoms deeper than our recent workings. Judging from the character of the lode in the bottom of these workings, we are expecting to meet with a productive lode in the cross-cut.

FRONGOOCH.—J. Kitto and Son, Dec. 20: As anticipated in our last report, we have just holed the winze below the 34 to the rise above the 44, which has thoroughly ventilated this part of the mine, and properly opened this valuable section of ore ground for stoping. These operations have proved the lode to be of a uniformly productive character, and worth 3 tons of blende ore per fathom, which will leave a fair profit over and above all working expenses, as we can work the ground, and bring the ore to surface very cheaply. The 34 is being driven west on the south part of the lode, which is very strong and compact, and yielding fully 3 tons of blende and 16 cwts. of lead ores per fathom. At the 44 we have just commenced driving a cross-cut to intersect the south part of the lode, which has yielded large quantities of ore in the lower levels, and we see no reason why it should not be equally productive at this depth; on the contrary, we have every reason to expect to find an extensive run of remunerative ground at and above this level. The stopes and tribute pitches throughout the mine are yielding about their usual quantities of lead and blende ores. We have sampled, and shall sell before the end of the current month 200 tons of blende and 60 tons of lead ores.

GOGINAN SILVER-LEAD.—J. Kitto and Son, Dec. 20: In consequence of the recent heavy rains we have had an increase of water at the bottom of the mine, which has somewhat checked our operations; but we are glad to state that at present our deepest level is drained, and everything is going on as usual. There is little change at either of the points under operation since the date of our last report, each of which is producing ore in paying quantities; but we regret to state that one of our stopes is nearly exhausted, and, unless we succeed in discovering other runs of equally productive ground, our returns of ore cannot be maintained much longer, as the lower quality ground, of which we have considerable quantities, will not pay for working with the present low price of ore. We have sampled 10 tons of silver-lead ore for sale on Dec. 29.

GREEN HURTH.—J. Polglase, Dec. 18: The bottom level, south of Swan shaft, is worth 2 tons per fathom. In the bottom level north the vein is disordered in the present end, which we expect will recover itself in a few feet; worth 10 cwts. per fathom. No. 1 stope is worth 7 tons per fathom. No. 2 stope is worth 2½ tons per fathom. No. 3 stope, back of Standage, is worth 2 tons per fathom. The rise in the back of the 30 level is worth 1 ton per fm. The rise in the back of the trial drift is greatly improved, and is worth 1¼ ton per fathom. We are driving west from the 44 to cut the heave; ground hard. Considering the weather, we are doing well in the dressing department.

HEALEYFIELD.—John Trelease, Dec. 19: The different points of operations are looking much the same as last reported. The vein in the Grindstone Sill still maintains its value; we are stoping down the south end of the rise, and judging from the present appearances this morning there is every possibility of this discovery extending farther south than we first anticipated. Our progress at this point has been most satisfactory. The stopes in the old mine are without change. We have been dressing up the tributers' ore this week, and we hope next week to start on the house taken from the Grindstone Sill. We have the 10 tons No. 1 and 5 tons No. 2 ore ready for market.

KIT HILL GREAT CONSOLS.—Isaac Richards, Dec. 23: At the Tunnel level the ground, which for some time past has been hard and difficult to explore, is now somewhat easier, and there are indications of a lode or branch near at hand, and which will probably account for this favourable change in the ground. The distance driven during the past week is 1 fm. 4 ft. In the north engine-shaft, sinking below the 100, the lode is 3 ft. of which is being carried—continues to present a very promising appearance.

MELLANEAR COPPER.—John Gilbert, Dec. 22: There is no change in any of our underground bargains since last Wednesday's report. Next Saturday is our pay and setting, when I will send you the usual detailed monthly report. Gundry's engine is going about 4½ strokes per minute, and if we get a favourable winter I am hoping we shall be able to keep the mine drained without putting the old engine to work.

MID-DEVON COPPER.—James Neill, Dec. 20: At A shaft the 12 men have been engaged all the week excavating plat at 90; it will now take two or three days next week to complete it. I thought it would have been under the hard bar of rock passed through in sinking, but find it continues where the plat is being excavated, which has impeded the work. Machinery is doing good duty, working slowly.

NEW CARADON.—N. Richards, Dec. 22: The shaftmen are making fair progress in executing the work referred to in last week's report, and I think it will be accomplished in the time we calculate.

NEW KITTY.—Wm. Vivian, Dec. 23: In the 40, driving east of Thomas's shaft, the lode is of a very promising character, producing a little copper and tin, but not to value at present. In the 20, driving east, the lode is producing a little tin—saving work for the stamps.

NEW LANGFORD.—T. Gregory, Dec. 22: The lode in the 10, west of engine-shaft, is of the same size and composition as reported last week—a very fine looking lode. In the 30, west of engine-shaft, the lode is from 3½ to 4 ft. wide, producing some good blende, silver-lead, and copper, equal to 3½ tons per fm. These ends are going into new ground, and are speedy and cheap to work; therefore the expenses are low, and any day may make a valuable discovery.

NEW TRUMPET CONSOLS.—Thos. Quentrall, Dec. 23: The lode in the 40 west has improved since last report, and is now worth 10*l.* per fathom for copper. The lode in the winze coming down a short distance before this end is also worth 10*l.* per fathom for copper. Our stopes are looking just the same as usual. We sold yesterday 15 tons 3 cwts. 3 qrs. of copper ore for 89*l.* 13s. 9d.

NEW WEST CARADON.—N. Richards, Dec. 22: No. 5 lode east at the 38 is from 2 to 3 ft. wide, a kindly looking lode, but unproductive. The bottom stope on this lode west is poor. The men are now engaged stoping the back, which is getting near the end. The lode is yielding ½ ton of copper ore per fathom. The ground in the cross-cut south at this level is at present stiff for driving.

NORTH BUSY UNITED.—J. James, Dec. 23: The ground in 15 west on No. 1 copper lode is getting more mineralised and softer killas, and I look for an early improvement for copper ore in this end. Purser's lode driving east of cross-cut, lode is 2½ ft. wide, composed of flookan, arsenical mundic, blende, and stones of copper ore, a very promising lode. West on this lode the lode has been disordered by the cross-course, now getting more settled, and producing arsenical mundic and stones of copper ore. We expect to meet with the junction here with the branch passed through in cross-cut, which branch produces a little copper ore. We sampled the month's ore yesterday, for sale next ticketing; altogether we are doing better than for a long time past.

NORTH GREEN HURTH.—James Polglase, Dec. 18: We have just cut the heave in driving west on the new vein. We have not seen any ore yet, but it is a kindly lode. In the east level on the new vein there is no change. The deep cross-cut level and the level in Hospital property are without change.

PATTERSYKE AND CLARGILL HEAD.—John Peart, Dec. 19: The drift going south in Sir John's vein from foremost rise in low level, contains a good deal of rider mixed with nice red mineral and spots of ore, but nothing worth saving. The cross-cut to the west from low level is now out of the influence of Sir John's vein, but so far nothing has been cut of importance; should the Clargill Head vein, or any other, cross where we are, there will be no difficulty in seeing it. From the best calculation I can make, if the Clargill Head vein comes down perpendicular from the surface, we ought to be very near it.

POLCREBO.—W. H. Martin, Dec. 22: Highburrow Shaft: The 50 end is extended east 14 fathoms; in this drivage we have passed through 10 fathoms of profitable tin ground, and as previously reported the bottom of the level is of the most productive part of the lode; it has every appearance of being the top ore. I have had 3 ft. sunk in the bottom of the level, and the lode for 3 ft. wide produces 1 cwt. tin to the ton of stuff; driving by six men at 3*l.* 10s. per fm. The 50 west is driven 9 fms. 3 ft., since we passed through the soft granite the lode is large and better defined; for 2½ ft. wide it produces 56 lbs. tin to the ton, driving by four men at 3*l.* per fathom. The 40 east is driven from shaft 54 fathoms, driving by six men at 5*l.* per fathom on the south lode for dispatch. In the last 12 ft. there has been a great change in the south soft course; it is now much harder and against the progress. The north country is full of blue peach joints, and water issuing; this, in my opinion is coming from the north main lode. The 40 west is driven 45 fms. 3 ft., driving by four men at 3*l.* 5s. per fm.; the lode is 2 ft. wide, yielding stamping work for tin. No. 2 rise in the back of the 30 east is up 6 ft., rising by four men at 6*l.* 10s. per fathom; we shall draw and sample the lodestuff next week. In the 30 east we have driven a short cross-cut and communicated with the north-west level, which has greatly improved the ventilation in the north level, and is a great advantage for the discharge of tinstuff.—Tribute: Pitch in back of the 30 west, by four men, at 12s. in 1*l.* Pitch in bottom of the 17 west, by four men, at 13s. 4d. in 1*l.* Pitch in back of the 17 west, by two men, at 12s 4d. in 1*l.*—Surface: We have fixed a line of iron rods with angle and main bob from the stamping-engine to one of the adit shafts to repump the water for the dressing-floors, and made three catch

ponds to filter the water, and we are making two more. We have now three 20-ft. centre-head buddles on the dressing-floors, and in course of building a dressing-house 40 ft. long, and 24 ft. wide.

PRINCE OF WALES.—S. Roberts, Dec. 23: The 102 east was set on Saturday last to six men at 10*l.* per fathom. We are now driving in a horse of killas in the lode, which appears to be narrowing as the end advances. The south part of the lode is 2 ft. wide, and the north part 5 ft. wide, together worth 16*l.* per fathom. Stope in the back of this level set to four men, at 3*l.* 10s.; lode 5 ft. wide, worth 5*l.* per fathom. Stope in the bottom of the 90 east, to two men, at 4*l.* per fathom; lode 3 ft. wide, worth 5*l.* per fathom. This being directly west from the above stope we are expecting an improvement as it gets near the run of tin ground gone down in the bottom of the level further west. The 90 west to four men, at 5*l.* 10s. per fathom. The new silver lode, and the main lode are still in the end; the former is 1 ft. wide, composed of quartz and white iron, the latter 8 ft. wide, principally dark capel and spar, with a little copper ore, mundic, and tin. The several tribute pitches are reset at from 12s. to 13s. 4d. tribute to pay all costs.

ROMAN GRAVELS.—Arthur Waters and Sons, Dec. 23: The various ends, the rise in the 110 south, and the winzes (one in the 95 south and the other in the 65, north of new shaft) are all yielding up to the values given in last week's report. We see no falling off in the output from the stopes either. The last sale of ore is being delivered to Messrs. Walker, Parker, and Co., as fast as the wagons can take it.

SOUTH WHEAL FRANCES.—C. Craze, Dec. 22: I pleased to say that our new pitwork at Marriott's shaft is working well, and we are again forking the mine with fair speed. The water is now about 6 ft. above the 205 fm. level at Pascoe's.

TREVAUNANCE UNITED.—Wm. Vivian, Dec. 23: In the 55, driving west, the lode is worth 10*l.* per fathom for copper ore. Good progress is being made in cutting down the engine-shaft, and also in building the engine-house.

WEST CARADON.—N. Richards, Dec. 22: Gilpin's lode in the bottom of the 38 is not looking so well, now yielding from ½ to 1 ton of copper ore per fathom. The stopes in the back of the adit level on this lode will yield together 2½ tons of ore per fathom. A stope in the bottom of this level will yield 1 ton of ore per fathom.

WEST CREBOR.—J. Andrews, Dec. 23: The lode in the 95 west is 5 ft. wide, and is letting out more water, but there is no other change during the past week. In the 80 west the lode is 3 ft. wide, and yields a little more ore than for several weeks past, but not sufficient to value.

WEST KITTY.—W. Vivian, Dec. 23: The 84 driving east of cross-cut, lode worth 14*l.* per fathom. Rise in back of 72, lode worth 16*l.* per fathom. The 60 driving east of the main rise lode worth 16*l.* per fathom. The 60 driving east of cross-cut, lode worth 15*l.* per fathom. No. 3 rise in the back of the 60, east of cross-cut, lode worth 80*l.* per fathom. The 50 driving east of No. 1 rise, lode worth 10*l.* per fathom. The 50 driving east of No. 2 rise, lode worth 14*l.* per fm. No change to notice in the stopes since last report.

WEST PHŒNIX.—W. Rich, R. Gluyas, Dec. 22: Norris's engine-shaft is in full course of sinking below the 70, and is now 5 fms. below that level. The south part of the lode is carried in sinking, and is 4 ft. wide, and of a very promising appearance; there is more quartz in the composition of the lode than formerly, which we consider to be a favourable indication. The 70 end east is in a large hard lode with a little tin, but not enough to value. The south part of the lode in the 70 west is fully 4 ft. wide, composed chiefly of chlorite and friable quartz. In the 52 end west we have a large regular and well-defined lode, and in easy ground; this end was extended over 7 fms. in the past four weeks. At first sight one can hardly believe but that the lode is productive for tin, it has such a fine appearance.

WHEAL BENNY.—S. Harris, T. Cocking, Dec. 23: Setting Report: The engine-shaft to sink below the deep adit level by nine men, the month, at 15*l.* per fathom. A winze to sink below the deep adit level on the course of the lode, which is 4 fms. north of shaft, by six men, at 8*l.* per fathom. The lode here is the same as last reported, worth 14*l.* per fathom. Two stopes in back of shallow adit level by four men, each at 2*l.* 10s. per fathom: lode worth fully 5*l.* per fm. The dressing department is progressing satisfactorily, and machinery working well.

WHEAL CASTLE.—J. Boyns, Dec. 20: The 80 south is being driven by four men and boy. Next week we shall be able to value the lode in this end. We have to drive the level in the granite by the side of the lode first in order to break the lode to itself. The cross-cut west in the 80 north has been driven by two men; here we have met with a large lode with a little tin, but not enough to value. The cross-cut west in the 70 north is being driven by one man and boy; here the ground is changing for the better, with branches of good tin-stuff, mixed with the killas which we think is coming from the lode. The cross cut west in the 60 south, to cut the Castle lode, is being driven by two men. The 35 cross-cut west is being driven by five men and boy; here we have just met with Forman's lode. From the little we have seen of it we find tin and copper of good quality; shall be able to tell more about in next report.

WHEAL CREBOR.—H. Phillips, Dec. 23: Setting Report: To drive the 156, west of new shaft, by six men, stent the month, at 6*l.* 15s. per fathom. The part of the lode carried contains spar, impregnated with mundic and copper ore; we shall force on this end by the side of the lode to reach the winze sunk about 5 fms. below the 144, which the influx of water compelled us to suspend until drained from below. To drive the 144, east of new shaft, by four men, stent the month, at 5*l.* per fathom. The lode is 5 ft. wide, containing arsenical mundic and white iron. To drive the 144, west of new shaft, by four men, stent the month, at 9*l.* per fathom; at this point we have met with a branch crossing the end in an oblique course, which has improved the lode to the value of 3 tons of copper ore and 3 tons of mundic per fathom. No. 1 stope in back of this level, set to six men, at 5*l.* per fathom, the lode will yield 7 tons of copper ore and 2 tons of mundic per fathom. No. 2 stope in back of said level, set to six men, stent the month, at 5*l.* 5*l.* per fathom, the lode will yield 10 tons of copper ore and 4 tons of mundic per fathom. No. 3 stope in back of this level, east of winze, will yield 7 tons of copper ore and 3 tons of mundic per fathom, set to six men, stent the month at 4*l.* per fathom. To stope, east of winze, sunk in bottom of the 132, by four men, stent the month, at 4*l.* per fathom, the lode will yield 7 tons of copper ore per fathom. To stope west of winze, by six men, stent the month, at 4*l.* 5s. per fathom. The lode will yield 8 tons of copper ore and 2 tons of mundic per fathom. To drive the 108, east of winze, by two men, stent the month at 5*l.* 10s. per fathom, the lode contains a little mundic; the strata is of a more congenial nature for the production of mineral. To drive the 72, east of new shaft, by two men, stent the month at 6*l.* 10s. per fathom, the lode is over 3 ft. wide, containing a little mundic. To drive the 48, east of new shaft, by two men, stent the month, at 6*l.* 10s. per fathom. The lode contains arsenical mundic intermixed with lead. To sink a winze in the bottom of the 48, by two men, stent the month at 11*l.* per fathom. The lode will yield 1 ton of copper ore and 1 ton of mundic per fathom.

WHEAL PEEVOR.—W. T. White, T. C. King, Dec. 23: We are pleased to say we have cut a lode in the 48 cross-cut north which we consider to be the Quarry lode; it is about 18 in. wide, and underlying south about 15 in. in a fathom. We assayed a sample from it, and it produces a little tin. Being so near the cross-course we should not calculate on its being very rich; but without doubt, from its congenial appearance as we extend away from the cross-course, it will become larger and more productive. This lode stands whole throughout the mine, and is parallel with the new tin lode we are now developing. We think this discovery important. We have no particular change on the new tin lode. The lode in the 16 end is opening up profitable ground; the lode is worth 10*l.* per fathom. We have six men in this end, and are laying open a good section of tin ground. We hope to cut this lode in the 30 cross-cut north in about seven weeks.

FOREIGN MINES.

ALAMILLOS.—Dec. 17: The lode in the 20 driving west of Santa Agneda shaft continues to open up good stoping ground worth 1 ton per fathom. In the 20 driving west of San Martin's shaft a good length of well-defined lode is being opened up yielding 1½ ton per fathom. The 50 driving west of San Felipe's shaft is communicated with Roca's winze and is suspended. In the 130 driving east of Taylor's engine-shaft the men are driving north in hard granite. The lode in the 130 driving west of Taylor's engine-shaft contains spots of lead. In the 115 driving in the same direction the men are still driving north to prove if the lode is in that direction. The lode in the 80 driving east of San Victor's shaft is producing stones of ore. In the 95 driving north of San Victor's shaft a valuable lode has been intersected by driving a short cross-cut, its present worth being 2 tons per fathom. The lode in Cazorla's winze sinking below the 80 has declined in value to ½ ton in a fathom since it was last reported.

COLORADO UNITED.—Dec. 6: The 14th level is now in 125 ft. east from the Silver Ore shaft; the lode is carrying a fine crevice from 4 to 5 feet in width, hearing from 7 to 8 in. of quartz, interspersed with mineral and silver glance. This produces good concentrating dirt, but no cobbing ore; we expect to strike ore within the next 30 ft. Our contractors have been greatly delayed during the past month owing to the town of Silver Plume having been burnt to the ground. We hope now to get the level pushed on rapidly.—Tributers' Pitches: On the Terrible lode we have 12 different parties of leasers working. The following will give an idea of these various pitches. In the back of the 13th level P. M'Sweeney and party, and Polkinghorn and Co., are at work. The former is back stoping in No. 1 stope, and the ground is yielding about ¾ ton to the fathom. The ore is improving in quality as the 12th level is neared. The latter party are working the back of No. 3 stope at the back of this level, the ground producing from ¼ to ½ ton of ore per fathom. In the 12th level Patrick Foley is paying the company 25 per cent. royalty on the cobbing ore picked from the stulls; at the same time he agrees to run all the fine dirt out to the shaft to be hoisted for the mill. In the 10th level west from the shaft Lampshire and Co. are working out an old block of ground containing some 85 fms. The ground shows a little mineral and quartz. The next pitch is W. Payne and Co.'s, situated to the west of the shaft, on a lode south of the Terrible. During the ensuing month they will be engaged putting in timbers and fixing up their level so as to connect it with the main level, and make it a good piece of work. On the eighth level Champion and Co. are drifting east in a blind drift between the eighth and ninth levels. They are taking out a little ore, some of which is of very fair grade. The entrance to their drift is some 250 ft. east of the shaft. On the seventh level two sets of leasers are working on ground on either side of the shaft. To the east of the Silver Ore shaft, about 60 ft. in, Pollard and Co. are working out a block of ground running up to the sixth level; the ore here is mostly quartz and mineral mixed, but runs well in silver. To the west of the shaft on this level, Wedge and Co. are back stoping. The mineral is of rather low grade at present, but it is expected to improve as they raise up on it. On the fourth level three parties are at work. To the west of the Silver Ore shaft J. Sopp and Co. are stoping away an old block of ground. At present the ore is very small, but of good quality. J. Williams and party, 30 ft. east of the shaft, are driving a blind drift easterly. They have found 1 to 1½ in. of ore, some of which is of good quality. S. Austin and Co. are working at the eastern extremity of our ground adjoining the Dunderberg property. They have about ¼ ton of ore to the fathom, with good indications for better ore. Jewell and Co. are working on the first level, east of the old Terrible shaft. Their ground is very hard, and the mineral small, but of good grade. The above are the parties working on tribute on the Terrible lode. F. M'Sweeney is still driving easterly on the Silver Ore lode; the lode is carrying a little mineral of low grade. Some 300 ft. east from the tunnel on this lode Jewell and Co. are driving a cross-cut north to meet the Gunboat lode. They are now in 8 ft., with very hard rock. When they strike the Gunboat they will have the option of a lease on the lode. On the Gunboat lode three parties are working. Stocker and Co. are situated about 160 ft. east from the tunnel, and are about 100 ft. up from the back of the tunnel. They have not yet holed through to surface. The streak of ore still holds out, and gives them very fair pay. To the west of the tunnel Thomas and Co. are back stoping, and Pemberthy and Co. are sinking. They each have a little ore. On the Chelsea Beach Woods and Powers are still sinking the shaft. They are down 80 ft., with a good streak of ore of low grade. Their last mill run gave 77 ozs. of silver to the ton, worth $54·38 per ton. All the above parties pay the usual royalty of 25 per cent., except the last, who pay no royalty whilst sinking. The western portion of the property will be reported upon in the next letter.—Shipments: 682 sacks of leasers' ore.

DENVER GOLD.—Alfred Rickard, Nov. 30, The drift in the 80 ft. level, east of cross-cut, on north vein, has followed the hanging-wall branch of the lode, which has diminished to 6 ins. of ore. This, we think, will change and open out to the usual size in advancing. In the stopes east at the 200, there is quite an improvement. The vein has opened out nicely, and carries 1½ ft. of good ore, in places a good portion of smelting ore. The lode in the 900, east of cross-cut, on north vein, has become barren in the last few feet; the nature of the vein leads us to expect a change for the better in a short time. The cross-cut No. 2 at the 900 has met with a small vein containing zinc blende; it is too insignificant to develope, and the rock beyond is hard. In the cross-cut No. 1, in the 1200, the rock is hard and the ventilation is rather imperfect. An air machine will have to be put in shortly to carry on this work successfully.

The 550 west, on the main vein, has been cleared to the end, which is 837 ft. from shaft; track is laid, and in good working order. The breast of the drift shows 10 in. of quartz of a very promising nature; in several places the backs will pay to stope, and arrangements are in hand for working them. The stopes west at the 1200 are looking well. The pay is 1½ ft. wide for considerable length, and we think it will supply fair grade mill ore throughout. Some stoping ground has been discovered in the bottom of the 1200, which, when opened out, will yield milling ore of paying grade. The ground in the 1350 drift west is still hard, and vein small, yielding nothing to save.

FORTUNA.—Dec. 17: Canada Incosa Mine: The lode in the 90, driving west of San Pedro's shaft, is compact, and has improved in value to 1 ton per fathom. In the 126, driving east of O Shea's engine-shaft, the lode is small and poor, and the granite hard. The lode in the 110, driving west of Lowndes' shaft, has declined in value during the past fortnight. In the 110, driving east of Lowndes' shaft, the lode contains stones of ore, but scarcely sufficient to value. The lode in Gracia's winze, sinking below the 100, is open and promising, yielding 1 ton in a fathom, but very wet and difficult to work.—Los Salidos Mine: In the 175, driving east of Taylor's engine-shaft, the lode is very changeable; it was quite poor a few days ago, but has again improved to ¼ ton per fathom. The lode in the 100, driving in the same direction is large, promising, and productive, yielding 2 tons per fm. In the 145, driving east of Taylor's engine-shaft, the lode is compact, regular, and valuable, consisting chiefly of calcareous spar and lead ore, worth 2½ tons per fathom. Palgrave's engine-shaft, sinking below the 80, is off the lode, but not unfavourable, and good progress is being made.

The lode in Miron's winze sinking below the 145 is compact and productive, its present value being 2 tons per fathom. The weekly weighings of ore were kept up very regularly during the past month, and the stopes are yielding moderately at present. The surface works are going steadily, and the machinery is in good condition. We estimate the raisings for December at 300 tons. The tributers returned 164¼ tons of ore in the past month.—San Anton Mine: In the 65 driving east of Henty's engine-shaft the lode is large, yielding good lumps of ore, and has improved to ¾ ton in a fathom. In the 30 driving west of El Tesoro engine-shaft a good length of valuable lode was opened up in the past month. It has declined in value to 1 ton per fathom in the past few days. In El Tesoro engine-shaft sinking below the 30 the decomposed granite in this shaft is so soft as to require timbering, which makes the sinking difficult and expensive. The usual quantity of ore was delivered at the Fortuna smelting works in the past month, during which the stopes did not undergo any change of importance. The surface works are going on very regularly, and the machinery is in good condition. We estimate the raisings for December at 75 tons. The tributers returned 22 tons of ore in the past month.

LINARES.—Dec, 17: Pozo Ancho Mine: The lode in the 135, driving east of Warne's cross-cut is very open, yielding fine lumps of ore, valued at 1½ ton per fathom. In the 130, driving west of Warne's engine-shaft, the lode has improved to 1 ton per fathom during the past fortnight. The lode in the 115, driving in the same direction, is opening up a good length of ore ground, worth 2 tons in a fathom. In the 155, driving south of Peill's engine shaft, the granite is very hard, The lode in the 135, driving east of Peill's engine-shaft, is small and unproductive. There is no improvement in the 120, driving east of Peill's engine-shaft. No. 255 winze, sinking below the 105, is holed to the 120, its present value being 2 tons per fathom.—Quinientos Mine: The lode in the 115, driving west of Taylor's engine-shaft, is very open, and of a promising appearance, yielding ¾ ton in a fathom. In the 115, driving east of Taylor's engine-shaft, the lode is large and strong, with good stones of ore, valued at ½ ton per fathom. The lode in the 100, driving east of Taylor's engine shaft, is opening up a fine run of ore ground, worth 2 tons in a fathom. In the 90, driving in the same direction, the lode has declined in value to ½ ton per fathom during the past week.

MYSORE GOLD.—B. D. Plummer, Dec. 2: In Taylor's shaft, under the 173, the lode is looking as kindly as ever, but it is dipping north-west faster than the shaft can follow; assay value 4 ozs. 18 dwts. of gold per ton. In the south end the lode is not so kindly looking as it was, but we are now getting south of the ground the old men worked upon. The lode is 3 ft. 6 in. wide in the north end, but all the rock below the 173 is very hard and spare to cut. The No. 1 winze, under the 173, is down within 2 ft. of the back of the 60 ft. level, and as the water is so quick I have stopped it until the end is driven to it. Strange to say, no lode of any value has been met with in this winze; I am disappointed in consequence. In No. 2 winze, under the 173, there is a very small rib of quartz, but of no intrinsic value. The progress has been very slow in the 173 north end on west lode. I have got another company of coolies to work it, and, perhaps, better progres will be made. The rock in the 173 north end on east lode is promising in appearance, and there is a rib of quartz 3 in. wide. In the 173 cross-cut west from east lode very good progress is made. The lode in the 173 rise in back of level is 3 ft. wide; no assay has yet been made. The 135 north end on east lode is uncommonly good looking quartz, but there has not been any assay yet made.—Stamping: This goes on in a satisfactory manner. We have the four sets of Elephant stamps at work, but the bulk of the ore we have to stamp is of low grade; however, we shall be able to send you home for this month a pretty good gold bar, though not so much as last month.

RICHMOND CONSOLIDATED.—Dec. 24: Week's run (one furnace) $12,000 from 276 tons of ore; refined $13,000.

RUBY AND DUNDERBERG CONSOLIDATED.—Nov. 30: Dunderberg: The stope between the 400 and 500 ft. levels is improving slightly; there is no change in the stope above the 230 ft. level; 12 tributers at work and 5 tons ore shipped.—Lord Byron: The cave in the stopes at the west shaft has been followed down a total distance of 80 ft.; the ore in the footwall continues from 1 to 2 ft. thick, of good quality. The orebody lately discovered at the bottom of No. 1 cave is improving steadily; we have not yet ascertained its full size, but it is certainly the most extensive orebody ever discovered in this mine, and would produce ore much faster if it were not for the impracticable way we have to hoist it. The stope above the tunnel level is also looking better, and is now producing considerable ore. The stope in No. 2 cave is very poor at present. The ore shipments have been rather small during the week, but there is considerable ore accumulated at the mine, which will be shipped shortly. There are 18 tributers at work, and 13 tons ore shipped during the past week.

— Telegram, Dec. 23: 69 tons ore shipped, and 70 tons smelted producing to company $728.

ST. JOHN DEL REY.—Telegram from Morro Velho dated Rio de Janeiro, Dec. 22: Produce 12 days (first division of December) 6750 oits., value 2616*l.*; yield 3·3 oits. per ton. Profit for the month of November 1300*l.*—Cuiaba: Loss for November 50*l.*

MAGNETO AND DYNAMO ELECTRO MACHINES.

The system of technical and academic teaching which prevails in the universities and technical schools of Germany being exactly the reverse of that followed by the so-called science teachers of this country—who aim only at cramming their unfortunate pupils with undigested fact to be retained in the memory just long enough to enable them to satisfy the half-instructed and incompetent examiners upon whom they are dependent for their certificate of competency (?)—the German scientist or science student has much greater encouragement, after he has acquired a sound general education, to take up a special subject, and devote his entire energies to it, so as to become thoroughly proficient, and secure for himself and the world the full benefit of his labours. Hence it is that our text books of the last half century are, with the exception of those copied, sometimes with, sometimes without, acknowledgment from German originals of comparatively little practical value whatever merit they may possess from the novel and interesting theories enunciated. It is unfortunately but too true that educated specialists in practical subjects are in this country not numerous, though the evils of the "cramming" and "all round" system being now attracting attention, it may be hoped that we are on the eve of better days. Under the title of the Specialists' Series the first volume of what promises to be a really valuable technical library has just been issued by Messrs. SYMONS and Co., of Bouverie-street, the form chosen being a handy octavo admirably printed and illustrated, in which the subject is dealt with in a clear and compendious style.

The series is to be edited by Dr. Paget Higgs and Prof. Charles Forbes, and the present volume—Magneto and Dynamo-Electric Machines: with a Description of Electric Accumulators. From the German of Glaser de Cew. By F. KROHN; and specially edited, with many additions, by PAGET HIGGS, LL.D., D.Sc.—treats of a subject which is just now attracting very prominent attention. Although we have always maintained that, from the natural laws which regulate the diffusion of light, it is most improbable that the arc light can ever be economically utilised for street illumination, there is so wide a field for the useful employment of the arc system, whilst comparatively little further progress is required to make the very wide adoption of incandescent lighting practicable that we look forward with the greatest interest and confidence to the labours of specialists who devote themselves to the perfection of the dynamo. Few years only have elapsed, says the author of the German original of the present volume, since magneto and dynamo-electric generators began to be employed in practice, and the experience gained with regard to them is comparatively limited; but we are beginning to see that the machines as yet constructed are still capable of considerable improvement, and that by a rational construction we shall be able to increase their value. It is by the careful and thoughtful study of such works as that of Glaser de Cew that our specialists and inventors may expect to become such thorough masters of their subject that their perfecting, or at least vast improvement, of the dynamo may be easy to them.

A statement of the units employed in electrical measurements is followed by an introduction narrating the historical development of magneto and dynamo-electric generators up to the date of Ladd's machine with two cylinders, exhibited at the Paris Exhibition in 1867, and which was really the first commercially workable arrangement, although it has long since been superseded by better machines; then there are chapters on machines generating alternating currents, machines generating direct currents, on the particular applicability of the various electric generators, on automatic switches and current regulation, on electrical storage, on the physical laws bearing on the construction of electric generators and their practical application, on the construction of the several parts of electric generators, on the employment of electric generators for producing the electric light, and on various applications of electric generators; whilst, as appendices, there are given formulae for the construction of electro magnets, descriptions of instruments for measurements in connection with electric generators, and of the latest construction of generators, and an abstract of Prof. Chausius's very valuable mathematical paper on the theory of the dynamo machine which appeared in Wiedemann's Annalen, so that a more complete book on the subject need scarcely be desired. The style of the work is well calculated to meet the requirements of English readers, and is, without question, a very valuable addition to our electrical literature.

THE WORKS' MANAGERS HANDBOOK.

It is extremely difficult to decide what knowledge an efficient works' manager does not require; it is, therefore, by no means easy to judge how nearly any given book reaches to the exact requirements of the case. It is, however, quite safe to say that Mr. Hutton's volume—The Works' Manager's Handbook of Modern Rules, Tables, and Data for Civil and Mechanical Engineers, Millwrights, and Boiler Makers; Tool Makers, Machinists, and Metal Workers; Iron and Brass Founders. By WALTER S. HUTTON. London: Crosby Lockwood and Co., Stationers' Hall-Court—supplies data constantly required in the usual course of business and of the utmost importance. To make anything like an intelligible classification of so large a collection of promiscuous annotations as Mr. Hutton has succeeded in bringing together, must have involved a considerable amount of labour; but he has performed the task admirably, and by arranging the information in six sections he has greatly facilitated ready reference. The sections are devoted to stationary and locomotive steam-engines and gas-engines; hydraulic memoranda, pipes, pumps, and water power; millwork shafting, gearing, and pulleys; steam boilers, safety valves, and factory chimneys, then comes heat, warming, and ventilating; melting, cutting, and finishing metals; alloys and casting; wheel cutting and screw cutting; and, lastly, the strength and weight of materials, and various workshop data.

There are some carefully prepared specifications which have been actually given out and worked upon; and the information generally is precisely that likely to be required in practice, since the volume professedly represents the contents of an engineer's note book collected for use in his own works during many years of practice, and in order to make the matter given readily comprehensible by all classes of readers, the use of algebraical symbols has been, with one or two exceptions, dispensed with, the rules being expressed in words, and in many cases illustrated with worked out examples. The work is altogether well arranged, admirably printed and illustrated, and handsomely though cheaply bound, so that it will form a desirable addition to the library not only of the works' manager, but of any one connected with general engineering. It should, moreover, be metioned that there is a very full table of contents, and a copious index, which greatly facilitate the finding of any given note, and much enhance the value of the book.

AMERICAN COMMERCIAL DEPRESSION AND THE LABOUR MARKET.—Statements received from 4000 correspondents scattered through 22 States, chiefly in the north, wherein nine-tenths of the working classes reside, have been summarised by Bradstreet (New York), and is of a very discouraging character, inasmuch as it gives precision to the vague statements which have been afloat for some time of hardships among the wage-earning classes. Of the entire number 316,000, or 13 per cent., are without work; while among certain trades the percentage of distress is higher—among ironworkers, 20 per cent.; glassworkers, 19 per cent.; persons engaged in the tobacco manufacture, 17 per cent.; in the wool trade, 16 per cent.; in the leather trade, 14 per cent.; in the cotton trade, 12 per cent. The strikers, to the number of 17,550, have had their wages reduced 25 per cent. The depression was probably never greater; while at the same time the feeling is more hopeful, perhaps more so than the facts warrant.

PROVINCIAL STOCK AND SHARE MARKETS.

CORNISH MINE SHARE MARKET.—Messrs. ABBOTT and WICKETT, stock and sharebrokers, Redruth (Dec. 23) write:—With the improved condition of the tin market there has been more business in shares, and Dolcoath, Wheal Agar, and East Pool have been enquired for at higher rates. Wheal Basset, Killifreth, and a few progressive mines are in request. Closing prices herewith:—Carn Brea, 2 to 2½; Cook's Kitchen, 10 to 10½; Dolcoath, 69 to 69⅛; East Blue Hills, ⅜ to ½; East Pool, 39 to 39¼; Killifreth, 18s. to 19s.; New Cook's Kitchen, ¾ to 1; New Kitty, 1⅛ to 1⅛; Pedn-an-drea, 1 to 1⅛; Polberro, 2 to 2⅛; South Condurrow, 8 to 8¼; South Crofty, 2¾ to 3¼; South Frances, 5½ to 6; Tincroft, 5½ to 6; Trevaunance, 2 to 2¼; West Basset, 1½ to 1¾; West Kitty, 7¾ to 8¼; West Polbreen, ½ to ¾; West Frances, 7 to 7⅛; Wheal Agar, 17½ to 18; Wheal Basset, 2½ to 3; Wheal Grenville, 5¾ to 6; Wheal Kitty, ¼ to ¾.

— Mr. M. W. BAWDEN, Liskeard (Dec. 23), writes:—The mining market presents a firm appearance on the improved price of tin, with indications of a continuous advance. Pedn-an-drea United and Wheal Uny enquired for at present low prices on the favourable result of meetings held last week. Subjoined are the closing quotations:—Bedford United, 1⅛ to 1¼; Blue Hills, ¼ to ⅜; Carn Brea, 1¾ to 2; Cook's Kitchen, 10 to 10¼; Dolcoath, 68¾ to 69; Devon Consols, 1⅛ to 1⅜; East Caradon, ⅛ to ¼; East Pool, 38 to 38⅛; Glasgow Caradon, ⅜ to ½; Gunnislake (Clitters), ¼ to ⅜; Killifreth, ¾ to ⅞; Marke Valley, ½ to ⅝; Pedn-an-drea United, 1¾ to 1⅛; Phœnix United, 1½ to 1⅝; Prince of Wales, ⅛ to ⅛; South Caradon, ⅛ to ⅜; South Condurrow, 8 to 8¼; South Crofty, 3⅞ to 4; South Frances, 6 to 6¼; St. Just United, 3¾ to 4; Tincroft, 6 to 6¼; West Basset, 1¾ to 1⅞; West Caradon, ⅛ to ¼; West Frances, 7 to 7¼; West Kitty, 8 to 8⅛; West Crebor, ⅛ to ¼; West Phœnix, ⅛ to ¼; Wheal Agar, 17½ to 17¾; Wheal Basset, 2 to 2⅛; Wheal Crebor, ⅞ to 1; Wheal Grenville, 5¾ to 6; Wheal Kitty, ⅛ to ⅜; Wheal Uny, ⅞ to 1, o.p.

— Mr. JOHN CARTER, mine sharedealer, Camborne (Dec. 23), writes:—The share market is firmer, with rather more demand for tin mines. The following are the closing quotations:—Carn Brea, 2 to 2¼; Cook's Kitchen, 10 to 10¼; Dolcoath, 68¾ to 69¼; East Pool, 39 to 39¼; Killifreth, 17s. to 19s.; New Cook's Kitchen, ½ to ¾; New Kitty, 1⅛ to 1⅜; Pedn-an-drea, 1⅛ to 1¼; South Condurrow, 8¼ to 8⅜; South Crofty, 3 to 3⅛; South Frances, 5¾ to 6; Tincroft, 5¼ to 5¾; West Basset, 1¼ to 1⅜; West Frances, 7¼ to 7¾; West Kitty, 8 to 8⅛; West Peevor, ⅛ to ¼; West Seton, 2 to 2⅛; Wheal Agar, 17½ to 18; Wheal Basset, 2¼ to 2⅛; Wheal Grenville, 5¾ to 6; Wheal Kitty, ⅛ to ¾; Wheal Uny. ⅛ to ⅜.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, sharebrokers, Queen's Chambers, Market-street (Dec. 23), write:—The task of reporting on markets is by no means an easy one when the subjects of report are so much interfered with by holidays and the feeling of objection to act, as is common during the concluding period of the year. Directly on resumption of business after Christmas Day and Bank Holiday the arrangement of the account commenced, and in view of this very little business has been attempted, and quotations have ruled very nominal. Only where something abnormal has occurred is there any change of moment to report, and this condition is presented in but two instances—Canadians and Mexican Rails. The former, which had commenced a downward tendency when we wrote last Thursday, have, with very few and monetary intervals of rally, continued to decline, and are within a fraction of lowest points touched. Mexican Rails have come in for their usual fluctuations, and are somewhat lower than at last report, but above figures, which have been marked, as they had a sudden advance on publication of traffic returns, showing a decrease of only 540*l.*, and this being considered more satisfactory than had in some quarters been expected. Some falling off, however, has occurred, with balance of change as above named. The several classes of miscellaneous shares produce but little business, but where dividends are approaching figures have a hardening tendency as a rule.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 24, 1884.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde...	2 2 6½	—
,, Scotch, all No. 1 ...	2 3 3	—
Bars Welsh, f.o.b. Wales	4 15 0	4 17 6
,, ,, in London.	5 5 0	5 7 6
,, Stafford., ,,	6 7 6	—
,, in Tyne or Tees ...	5 0 0	—
,, Swedish, London...	8 15 0	9 15 0
Rails, Welsh, at works..	4 15 0	4 17 6
Sheets, Staff., in London	7 0 0	7 10 0
Plates, ship, in London.	7 7 6	7 15 0
Hoops, Staff., ...	6 7 6	—
Nail rods, Staff., in Lon.	6 5 0	6 7 6
STEEL.		
English spring	12 0 0	18 0 0
,, cast	30 0 0	45 0 0
Swedish, keg	13 0 0	14 0 0
,, fag. ham.	13 10 0	14 10 0
Rails at works.....	4 17 6	5 0 0
,, Light, at works...	5 17 6	6 0 0
LEAD.		
English pig, common...	11 0 0	11 2 6
,, ,, L.B.	11 2 6	11 5 0
,, ,, W.B.	11 5 0	11 7 6
,, sheet and bar..	11 12 6	11 15 0
,, pipe	12 5 0	—
,, red	13 5 0	14 0 0
,, white	14 10 0	18 10 0
,, patent shot ...	14 0 0	—
Spanish.....	11 0 0	—
NICKEL.		
Metal per cwt.	— —	—
Ore 10 per cent. per ton.	— —	—
SPELTER.		
Silesian ordinary brands	14 6 0	14 2 6
,, special brands.	14 7 6	14 10 0
English Swansea	15 5 0	—
Sheet zinc.....	17 15 0	18 0 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	77 10 0	78 0 0
,, bars ,, ...	78 10 0	79 0 0
,, refined.....	79 10 0	80 0 0
Australian	75 5 0	75 7 6
Banca	nom.	—
Straits	74 15 0	—
COPPER.		
Tough cake and ingot.	52 0 0	53 10 0
Best selected	53 10 0	55 0 0
Sheets and sheathing.	58 0 0	63 0 0
Flat Bottoms	61 0 0	66 0 0
Wallaroo	nom.	
Burra, or P.C.C.....		
Other brands ... nom.	56 15 0	57 0 0
Chili bars, g.o.b.	48 0 0	—
QUICKSILVER.		
Flasks, 75 lbs., war.	6 15 0	6 17
PHOSPHOR BRONZE.		
Alloys I. and II.	£103	0 0
,, V.	110	0 0
,, VI. and VII.	125	0 0
,, XI.	100	0 0
,, Duro A, Duro B	96	0 0
BRASS.		
Wire	5¼d.	
Tubes	7½	
Sheets	6	
Yel. met. sheath. & sheets	4⅞-5¼	per box
TIN-PLATES.*		
Charcoal, 1st quality ..	1 0 0	1 1 0
,, 2nd quality ...	0 17 0	0 19 0
Coke, 1st quality	0 15 6	0 16 0
,, 2nd quality	0 14 0	0 15 0
Black.....	per ton 15 10 0	—
Canada, Staff. or Gla. at Liverpool	12 0 0	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—This being a very short one for business, there is not much fresh news to report as regards the state of the Metal Market. As is usual in the Christmas week, ordinary business is almost at a standstill, for very few new orders have been booked, nevertheless in one or two isolated instances there has been a little more briskness at the works in order to complete certain contracts before the holidays commence. All descriptions of manufactured metals are nominally unaltered in price, and it is very improbable that any further change will be made this year, because many of the works will be altogether closed, and others will be working only at irregular time. The works for the most part have no particular encouragement to quickly re-open, they hold so few orders that there is not the business in hand to necessitate such a course, and the vacation this year will certainly prove a welcome break to the monotonous and gloomy state of business for many months past. Manufacturers and other traders will be able for a few days at least to divest their minds of the existing depression, and joining in the social gatherings of their friends the gloomy feelings which have been produced by the bad state of trade will be dispelled by the cheerfulness and expressions of good-will at this festive season.

The cheerfulness of this season of the year certainly seems to have spread itself to many operators, and during a few days of the week there has been a decidedly better tone characterising some metals. Prices have in some measure improved, the speculative demand has been more brisk. There has been less desire to press sales, holders have been stronger in their quotations. The future is viewed in a more sanguine light, the prospect is considered less gloomy. There is room for some improvement, be it only small. In some metals supplies are under the requirements of the trade, and in consequence dearer rates are looked for, and although just at present there is no disposition shown to follow up any important advance, yet at the same time the markets are stiffer, prices are dearer, and the demand more animated, and it is thought not unlikely but that after the holidays this improved tone may be further developed. The Metal Exchange will be closed from to-day until Monday next, Dec. 29.

COPPER.—Since our last there has been a rather better demand for this metal, and higher prices have been realised. The market displayed a hardening tendency at the close of last week, and on Monday good bit better prices were secured for Chili bars, the lowest official quotation for cash parcels being 48*l.* 7s. 6d. This improvement was still more pronounced yesterday morning, the demand, however, then being more for forward than for cash prompts, which indicated more confidence in the future. Forward lots were sold at repeated slight advances, until 49*l.* 7s. 6d. was paid. From this point, however, the market became somewhat easier, and sellers were again more plentiful. In manufactured and other descriptions of copper prices have remained nominal, and no fresh business of any importance is reported to have taken place. Many of the smelters are busy in completing old contracts, but new orders do not come in very rapidly, and fresh business with India is scarce, owing probably to the heavy quantities recently purchased by that country.

IRON.—This market remains extremely dull, and there is no fresh feature to report. Prices are very low and unprofitable, and orders for all descriptions are remarkably scarce. A strange feature in the market at the present time is the fact that many manufacturers are congratulating themselves on the limited number of orders they hold, simply because they think at the present low price the fewer orders held the better. Many of the works are already closed, having, on account of the bad state of the trade, commenced their Christmas holidays this year somewhat earlier than usual, while very few of them, indeed, will reopen before next Wednesday, so that practically we may say that business for this year in iron has been completed. The trade, whilst dull throughout the whole country, seems specially so in the Staffordshire districts, for there not only is there the ill effects of a general deficiency in the demand for consumption and shipment, but likewise competition is more keenly felt in that country, because of the comparatively cheap rates of all classes of Middlesborough iron.

The Glasgow warrant market will be closed from to-day until next Monday for the Christmas holidays, and from next Wednesday to the following Monday for the New Year's holiday. The market opened on Monday last with a steady tone, and business was done in warrants from 42s. 3d. to 42s. 4½d., and yesterday there was a very firm tone, with business between 42s. 6d. and 42s. 6d., closing with buyers over at the best, while this morning the price is telegraphed as 42s. 6½d. The shipments last week were again small, being only 6091 tons, against 6807 tons for the same week of last year, or a decrease of 516 tons, and which makes the total shipments for the whole of this year 520,114 tons, against 623,657 tons for the same week of last year, and 620,196 tons for the similar period of 1882. There are still 93 furnaces in blast, but the public stock has increased by 110 tons, and is now estimated at 579,433 tons, against 579,323 tons last week. The imports of Middlesborough pig-iron into Grangemouth last week were 7935 tons, against 3665 tons for the same time of last year, or a decrease of 4273 tons, and which makes a total increase for the whole of this year compared with last of 4311 tons.

The Cleveland market has been very dull, and business has been almost stagnant, not even the usual amount for this season of the year being transacted. Secondhand lots of pigs are offering at 35s. 6d. for No. 3 for early delivery, but makers' quotations are 36s. to 36s. 3d. Forge iron is in more limited demand, and the price asked is 34s., whilst warrants are offering at 35s. 6d., but buyers are only noted for their absence. The shipments last week were 15,767 tons, whilst the public stock shows a decrease of 40 tons. The chief deliveries have been to Scotland, shipments to all other parts having remained very limited. In manufactured there is not much doing, and prices are unaltered at 5*l.* 2s. 6d. for common bars, 4*l.* 12s. 6d. for angles, and 4*l.* 17s. 6d. to 5*l.* for ship-plates. According to the advices from Wolverhampton there is very little business doing, and most of the masters have already closed their works for necessary repairs and stocktaking. Prices all round are still very low, and much complained of. Sheets can be bought at 6*l.* 10s. to 7*l.* for singles, 7*l.* 5s. for doubles, and perhaps a little less; common bars are offering at 5*l.* 10s.; gas strips at 5*l.* 15s.; and hoops at 6*l.* to 6*l.* 5s., whilst pigs are all dull of sale, and show a fall of about 5s. for the year.

TIN.—Tin has been decidedly brisker this week, and better prices have been realised, quotations now being fully 20s. in advance of what they were last Friday. At the Batavian sale, held yesterday, the average price realised was 50·13 g. per pecul. There has been a very large business done for forward prompts; and although there are still some operators who appear to have little or no confidence in the stability of the market, yet this extensive purchasing for forward prompts may certainly be taken as an evidence of a brighter future. Prices have been kept down from special causes, from sympathy with other metals and other branches of trade, from groundless fears of increased supplies, but the actual features in the market are now beginning to make themselves felt. The turnover is heavy, the deliveries are large, and the supplies are not equal to the latter; therefore a smart rise is not improbable. The fall has been sharp, and the advance may be even sharper, because, in addition to the good regular demand, there is just now an extra amount of speculative buying.

SPELTER is still quiet at 14*l.* 2s. 6d. per ton.

LEAD is firm, at 11*l.* for Spanish, and 11*l.* to 11*l.* 2s. 6d. for English.

STEEL remains very dull, and no changeis to be reported in prices.

TIN-PLATES are dull of sale, and a low and reduced price fails to stimulate the demand.

QUICKSILVER firm, as last week.

There is very little business doing in the MINING SHARE MARKET owing to the approach of the Christmas holidays, and as our list is made up at 12 o'clock on Wednesday it will be mostly a record of quotations, and most of them of a nominal character. Tin has risen from 72*l.* 15s. to 75*l.*, and seems likely to go much higher. Copper has also risen from 47*l.* 10s. to 48*l.* 10s. Lead maintains its rise of fully 20s. per ton from the lowest price.

TIN shares are in fair demand at an advance in most cases, and rather difficult to obtain at quotations:—West Frances and East Blue Hills are both sought after at advanced prices; Carn Brea are quoted 2 to 2½; Cook's Kitchen, 10 to 11; Dolcoath, 68 to 70; East Pool, 38½ to 39½; East Blue Hills, ⅜ to ½; New Kitty, 1½ to ⅝; South Condurrow, 7½ to 8; South Frances, 5½ to 6; Tincroft, 5⅝ to 6½; West Frances, 7½ to 8½; West Kitty, 8 to 8½; Wheal Agar, 17½ to 18; Wheal Basset, 2½ to ¾; Wheal Grenville, 5¾ to 6¼; Wheal Metal and Flow, ½ to ⅝; Wheal Kitty (St. Agnes), ⅝ to ¾; Wheal Uny, ½ to ¾; Killifreth, ¾ to ⅞; West Godolphin, ¼ to 1½; Tresavean, ½ to ⅝.

COPPER shares have remained dull during the week, in spite of the hardening tendency of the copper market. Bedford United, 1 to 1½; Devon Great Consols, 1⅜ to 1½; Gunnislake (Clitters), ½ to ⅝; Marke Valley, ⅜ to ½; Mellanear, ¾ to 1; New West Caradon, 2s. to 3s.; Prince of Wales, 4s. to 6s.; West Caradon, 1s 6d. to 2s. 6d.; West Crebor, 1s. to 2s.; West Seton, 2 to 2½; Wheal Crebor, ¾ to 1; Ecton, 1½ to 1¾.

LEAD shares neglected. Van quoted ½ to ⅝; Great Laxey, 9 to 10; Roman Gravels, 3 to 3½; Leadhills, 1½ to 1⅝; D'Eresby, ½ to ¾; Old Shepherds, 7-16ths to 9-16ths; East Wheal Rose, 5-16ths to 7-16ths; Weardale, 1½ to 1¾.

FOREIGN MINES.—There has been practically nothing done since last report, and prices are quite nominal. The principal quotations are:—Akankoo, ½ to ¾; Alamillos, 1½ to 1⅝; Almada and Tirito, 1-16th to 3-16ths; Balkis, ½ to 3-16ths; Birdseye, ⅝ to ¾; Brateberg, 1 to 1½; California, ⅛ to ¼; Callao Bis, ½ to ⅔; Cape Copper, 39½ to 40½; Chile Gold, ⅛ to 3-16ths; Chontales, 1-16th to ⅛; Columbian Hydraulic, ⅝ to ⅞; Colorado United, 2½ to 2⅝; Copiapo, 1⅞ to 2½; Devala Moyar, ⅛ to ¼; Eberhardt, ⅛ to ¼; Fortuna, 2⅛ to 3⅛; Frontino and Bolivia, ¼ to ⅜; Hoover Hill, 3-16ths to 5-16ths; La Plata, 3-16ths to 5-16ths; La Trinidad ⅛ to 1 pm.; Linares, 2⅛ to 3⅛; Lisbon-Berlyn, 7-16th to 9-16th.

Mason and Barry, 8 to 8¼; Montana, ⅝ to ¾; Mysore Gold, 1¼ to 1½; New Emma, ⅛ to ⅜; New Potosi, 13-16 to 15-16; Nundydroog, ⅛ to ¼; Organos, ⅝ to ⅞; Orita, 1¼ to 1⅜; Oscar (15s. paid), ⅝ to ¾; Panulcillo, 2⅜ to 2⅝; Richmond, 3½ to 3⅝; Rio Tinto, 12⅛ to 12⅜; Ruby and Dunderberg, ⅛ to ¼; Santa Barbara, 1¼ to 1½; Schwab's Gully, 5½ to 6; St. John del Rey, 80 to 85; South Australian Mines Corporation, 1-16 to ⅛; Tharsis, 5 to 5½; Tolima, A, 5 to 6; Transvaal Gold, ⅝ to ⅞; United Mexican, 3⅜ to 3½; Victoria Venezuela, 7-16 to 9-16; Western Andes, 4¾ to 5¼; West Callao, ⅛ to ¼.

The MARKET for MINING SHARES on the Stock Exchange has, like other markets, been suffering from nascent holiday fever, and as mine shares, especially at a time like the present of depressed metal markets and frequent calls, are not generally recognised as appropriate Christmas presents, the amount of business done has been very limited and prices have not improved, for almost the only transactions effected have been in consequence of holders seeking to convert their paper into hard cash to supply the wherewithal to enjoy themselves. The extension of the warrant system to lead having been credited with the slight improvement which has occurred in that metal—though probably it had little to do with it, the idea had been entertained of creating copper warrants, tin warrants, and so on, but within the past few days the warrant system generally has received a shock from which it may take some time to recover. In the case of a firm which has just stopped payment, it was said that 20,000 barrels of petroleum upon the warrants for which money had been borrowed, and which were supposed to be safely stored could not be found, and although it has since been explained that only 9300 barrels were deficient, and that this was due to leakage, much annoyance was in the meantime caused. That the warrant system greatly encourages gambling in the commodity stored, whether it be iron, petroleum, or anything else, is well known, but it was supposed to somewhat steady the market, and the duplication of warrants or loss of the goods represented has not been frequent. So far as the miner is concerned, anything which tends to increase the price of metals is usually to his advantage, and especially at the present time, a rise in price appears to be the only movement which can give him any permanent relief. Tin, however much we may try to ignore the fact, can be produced in Australia, Tasmania, Malaysia, and elsewhere at such prices that there is no chance of the mines being suspended until the market price in London and Holland is considerably lower than that now ruling. The recent declaration of dividends by lead mining companies in this country shows that 11*l.* per ton for pig-lead does not render it impossible to carry them on with profit, whilst many Spanish and American mines could sell on the basis of 9*l.* per ton for pig-lead and still make profits. Copper, again, gives no indication that further decline will diminish foreign supply, and although the prediction that copper will descend to the price of lead may be somewhat pessimist, it seems to be not improbable that it will go much lower than it now is. The Tharsis, Rio Tinto, Mason and Barry in attempting to keep up profits by increasing the output are but making the situation worse, and may still have to report loss at an early date. In America the production is constantly increasing, the output for 1884 is estimated at nearly 60,000 tons, and the Liverpool and Swansea imports will reach about 20,000 tons. Arizona and Montana could, it is said, produce copper at a profit at half present prices, and although Lake Superior Mines look gloomy, there are too many of the old rich companies which can struggle on and about meet cost to make heavy suspensions probable. It is evident, then, that improvement in prices must be looked for not from diminished supplies of tin, copper, and lead, but from extended application, leading to increased consumption, so that it is in this direction that those interested should turn their attention.

The Stock Exchange authorities have decided to attempt to attack the evil, daily becoming greater, of outside dealings upon the basis of Stock Exchange quotations. The matter is fully referred to in another column. The remedy would appear to be very simple—to prevent communication by tape or telephone with anyone outside the "house," and to remove the restriction against members of the Stock Exchange advertising.

The Harrow Brick and Tile Company, with a capital of 50,000*l.* in shares of 5*l.* each, has been formed to acquire land in the neighbourhood of Harrow, containing valuable deposits of clay, and to manufacture therefrom bricks, tiles, pipes, and other like articles. One of the most important features connected with the company is that its land, which is freehold, is situated alongside the London and North-Western Railway, and it will be possible to load the trucks direct from the kilns. The advantage of this to the company will be obvious to all. It appears that contracts have already been obtained for the sale of the company's output up to 15,000,000 per annum, showing a clear margin of 12s. 6d. per 1000 bricks, and would bring in a net revenue of 9375*l.*

Devon Great Consols, 1⅞ to 2; the lode west of Watson's engine-shaft continues to be from 4 to 5 ft. wide, yielding 3 tons of copper and mundic ores per fathom, and its general character is of a most promising appearance.

Drakewalls, ⅛ to ¼. The sinking of the shaft is progressing favourably, and the lode in the deep adit level is producing good work for tin. The tributers are also returning a fair quantity of tin.

Kit Hill Great Consols, ⅛ to ¼; at the tunnel level the ground is getting easier to work, and there are indications of a lode or branch near at hand which probably accounts for the favourable change in the ground. The distance driven during the past week is 10 ft. In the north engine-shaft the lode continues to present a very promising appearance.

In Lead Mine Shares there has been scarcely a transaction, and prices are therefore quite nominal. A correspondent writes:—"For many years tin, copper, and lead have unfortunately been going down, and have this year reached the lowest price on record for the last 100 years. It is, however, satisfactory at almost the close of the year to see lead again gradually rising in price, also tin and copper, and we may see early in the next year a great demand for lead, tin, and copper mine shares."

Leadhills, 1⅛ to 1½, and have we understand been more in demand since the price of lead has improved.

Roman Gravels, 3 to 3¼. The agent reports that the various portions of these mines are opening out well, and that the mines generally never looked more promising.

At the Canada Company meeting, on Dec. 31, the directors expect to be in a position to recommend the usual dividend of 2*l.* per share for the half-year ending Jan. 10.

The London and South African Exploration Company have advice of remittances of 5500*l.* for the last four weeks, making with the 54,740*l.* previously advised a total of 60,240*l.* for the 52 weeks.

United Danubian Eight per Cent. Loan, 1867, coupons, due Jan. 1, and the bonds drawn for redemption, will be paid by Messrs. Fruhling and Goschen.

The Cattle Ranche and Land Company state that their debenture interest coupons, due Jan. 1, will be paid at the Alliance Bank.

Messrs. Matheson will pay the half-year's interest, due Jan. 1, on the Three per Cent. Bonds of the Zafra and Huelva Railway Company, and request holders to send in the coupons.

The Nobel's Explosives Company secretaryship having been resigned by Mr. W. Hill Thomson he having held it for upwards of ten years, the directors have appointed Mr. John L. Taylor to be his successor, and that they have also appointed Mr. Francis J. Shand to be assistant-manager of the company, both appointments to take effect from Jan. 1, 1885.

The Commercial (Mackay-Bennett) Cable Company's English representative states that the company's cables will be open for the transmission of messages to the United States, Canada, &c., on and after to-morrow, the 24th inst. He adds that the rate to New York will be 1s. 8d. per word. The company's office is at the Royal Exchange.

A commercial treaty has been agreed to between the United Kingdom and Spain whereby this country obtains "most favoured nation" treatment, in consideration of the raising of the limit of the 1s. duty for wine from 26° to 30°.

The Colonial Bank directors recommend a dividend of 5 per cent. for the half-year ending June 30, being at the rate of 10 per cent. per annum. The meeting will be held on Jan. 8.

Messrs. N. M. Rothschild and Sons announce that the dividend due Jan. 1 next on the Italian Five per Cent. Rentes will be paid by them on and after that date (Saturdays expected). The rate of exchange will be 25·35 per pound sterling, less Italian tax, 13·20 per cent.

The Globe Steamship Company: the receiver notifies that on and after Dec. 29, by direction of Mr. Justice Chitty, he will be prepared to pay the whole of the debentures of the company in full, with interest to Jan. 1, and that, as official liquidator, he will also pay at the same time and place a first dividend of 6s. 8d. per pound to the unsecured creditors.

The coupons due on Dec. 31 on the debentures of the West Coast of America Telegraph Company, will be paid by Messrs. Barclay, Bevan, and Co. The coupons must be left three clear days for examination.

The City of Quebec Six per Cent. Consolidated Fund Loan of 1878 interest coupons due Jan. 1, will be paid by the Clydesdale Bank.

The Ceara Harbour Corporation directors announce that the transfer book will be closed from Jan. 1 to Jan. 14, after which date the guaranteed interest on the share capital of the company, at the rate of 6 per cent. per annum, will be paid.

The new edition of Messrs. Street and Co.'s Indian and Colonial Mercantile directory will be issued in the course of next month.

MANUFACTURE OF TUNGSTIC ACID.—The principal ores of tungsten, such as wolfram and scheelite, contains tungstates, and the object of the invention of Prof. A. K. HUNTINGTON, of King's College, Strand, is to separate by a cheap and simple process the tungsten from its ores as a tungstate of an alkali metal, such as tungstate of soda or potash, and to treat this tungstate for production of tungstic acid. For this purpose he mixes with the ore, which may be previously calcined, an alkaline oxide, such as soda or potash, or suitable alkaline compound, such as carbonate of soda or soda ash, and fluxes such as may be found by experiment to be necessary, and he subjects the mixture to heat in a furnace. In some cases addition of flux may be unnecessary; but where there is a deficiency, for example, of silicious matter in the ore that may be added in the form of sand or crushed quartz. The fused tungstate of the alkali metal may be tapped off, or, after partial cooling, the slag which separates in setting may be removed, leaving the tungstate. Should the tungstate contain impurities it may be refined by fusing it again with addition of some substance, such as silicate of soda or glass that will take up the impurities, and form a slag that can be separated, as described, from the tungstate. The tungstate thus obtained is available for use, or it may be dissolved in water, and crystallised or treated for the production of oxide of tungsten and metallic tungsten. For producing oxide of tungsten the tungstate solution may be treated with substances, such as lime or magnesia, or salts of these, which throw down insoluble tungstates, and these may then be treated by an acid, such as hydrochloric acid for lime, or sulphuric acid for magnesia, forming a soluble solution with the lime or magnesia, and precipitating the tungstic acid. The tungstate, instead of being treated as above described, may have added to it concentrated sulphuric acid, whereby insoluble tungstic acid will be thrown down. Thus the essence of the invention is the manufacture of tungstic acid and its compounds by melting to a liquid condition tungsten ore in

admixture with alkali, separating the tungstate from the slag, and afterwards treating it, if required, for production of tungstic acid or tungstates.

THE CHANNEL TUNNEL AGAIN.

If any further evidence were required of the truthfulness of the proverb that certain people "and their money are soon parted" it would be afforded by the fact that there are some persons still to be found to support such a visionary and non-commercial scheme as the Channel Tunnel; and there is something very like clap-trap in Sir Edward Watkin's suggestion that the opposition of the British Government to the Tunnel had arisen from a desire to conciliate Germany. Nothing can be further from the fact. Not only does Germany desire no conciliation from England, but the recent colonial acquisitions by Germany are not in any way calculated to injure the interests of England, and as the German people are much more likely to work smoothly than the irritable and unreliable race across the Channel, it is neither warrantable nor politic for one in Sir Edward's position to pretend, even by inference, that so far as the Channel Tunnel is concerned, the friendly feeling between England and Germany has in any way changed since his scheme was officially declared to be commercially, if not absolutely, impracticable.

At the meeting of the Submarine Continental Railway Company, on Tuesday, the Chairman (Sir E. W. Watkin, M.P.) in moving the adoption of the report and accounts, said that the proprietors of the company, and they only, had solved the main question as respected the tunnel under the Channel. That question had divided itself into three parts—first, whether the work could be accomplished at all; second, in what way it could be accomplished; and, thirdly, in what time, and what probable cost it could be accomplished. Well, nobody but themselves had achieved anything whatever on the question. There had been a great many interviews and a great many protocols, and, no doubt, a great many good dinners, but nobody else had done anything to deal practically with the question on this side of the Channel. With regard to the other side, their friends in France had made a vast number of excellent and practical experiments with the laboriousness of mind and patience which distinguished the French people in general business matters, and guided by the light of those experiments and their own, they had proved the practicability of the tunnel, the adaptability of the submarine strata, and the value of the machinery by means of which the tunnel was to be constructed. Sir Edward's idea of making the French and English one family (the notion of making the English and Germans one family would be less absurd) is something like attempting to make one family of the bulls and frogs by whose names they respectively the English and French are playfully but certainly not in any unfriendly feeling designated. Sir Edward says it is not a question of profit and loss, but this is not the fact. If he will only publicly admit what he well knows to be true, that it is utterly impossible for the tunnel to return 1 per cent. per annum interest upon even the estimated outlay, he would not receive such support as he has received for another day. At an extraordinary meeting held at the close of the first the Chairman proposed a resolution, "Approving of a Bill authorising the South-Eastern Railway Company and the company, either alone or jointly with other companies, to maintain and continue experimental works for a tunnel beneath the Straits of Dover and for other purposes." He said that the object was to keep the matter constantly before Parliament, and as last year they obtained under the most discouraging circumstances what they considered a good division they hoped they would have a very much better one next year. In the interest of the country and of capitalists it is to be sincerely hoped that he will be disappointed.

INSTITUTION OF CIVIL ENGINEERS.—The report of the Council for the past year presented at the anniversary meeting on Tuesday evening (Sir Joseph Bazalgette, C.B., President, in the chair), showed that steady progress had been made in the position of the Institution, the number of members and associates together having increased from 3688 to 3782. The changes in the class of students had been numerous, although the numbers were the same at the end as at the beginning of the year. One of the principal objects of the annual general meeting was the election of Council, and it was sought to make the balloting list representative of every branch of engineering, and as far as possible of every influential centre of engineering. The income proper had amounted to 14,293*l.*, and the expenditure to 12,477*l.* Life subscriptions, admission fees of new members, and dividends on investments under trust, with the balances brought forward raised the gross amount to be accounted for to 19,331*l.*; and on the payment side 5322*l.* had been invested and 517*l.* expended on premiums. The library had been efficiently maintained, although the space available for its extension was limited. Among the presents received during the year, the late Mrs. Rendel had bequeathed an oil painting, by Carmichael, of the Grimsby Docks, one of the chief works of her husband, who was President of the Institution in 1852 and 1853, and a portrait of the late Sir William Siemens had been received, the gift of his widow. The Council elected for 1885 were Sir Frederick Bramwell, President; Edward Woods, George Barclay Bruce, Sir John Coode, and George Berkely, vice-Presidents; and Benjamin Baker, John Wolfe Barry, Sir Henry Bessemer, Edward Alfred Cowper, Sir James Nicholas Douglass, Charles Douglas Fox, Alfred Giles, M.P., Harrison Hayter, Dr. William Pole, William Henry Preece, Sir Robert Rawlinson, C.B., Sir Edward James Reed, K.C.B., M.P., Francis Croughton Stileman, Sir William Thomson, and Sir Joseph Whitworth, Bart., as other members of Council.

DEVALA MOYAR.—The accounts and reports prepared for the forthcoming meeting have been issued to the shareholders. The accounts show a profit on the year's working of 591*l.* 3s. 4d. The cultivation expenses of coffee and cinchona amount to 2735*l.* 11s. 11d. The proceeds of the coffee crop were 1766*l.* 1s. 3d., and of cinchona 113*l.* 19s. Dividends on investments and interest were 2476*l.* 16s. 9d. The report states that the time had not yet come when they could arrive at a decision as to the real value of the company's mining property. The directors cannot advise as yet abandoning the mining enterprise, involving, as it would, the total loss of the capital expended; and they propose continuing to push on the works with vigour. The cinchona trees were being increased in number; the nurseries also were in a flourishing condition. The possibility of profitably cultivating rhea and other grasses is continuing to have the directors' attention; but the time has not yet arrived, in their opinion, for taking positive action. The proposed agreement with the Rhodes Reef Gold Mining Company has been made, and the liquidation of that company is proceeding in the manner contemplated.

PEDN-AN-DREA UNITED.—At the meeting on the mine on Dec. 19 (Mr. R. S. Teague in the chair), the accounts, showing a loss on the 16 weeks' working of 88*l.* 18s. 10d., and a balance against the adventurers of 387*l.* 0s. 9d. were presented and passed. The mine costs amounted to 453*l.* 9s. 2d.; merchants' bills, 968*l.* 3s. 7d. The tin sold—amounting to 58 tons—realised 243*l.* 16s. 4d. The agent's report stated that looking at the improved prospects of the mine at the 100, and the pitwork being put in good order, it was desirable to proceed with the forking of the mine with all possible speed. It was resolved that the salaries of the managers, Capts. Thomas and Kempthorne, be increased two guineas per month, making their salaries 10*l.* 10s. per month each; also that a vote of thanks be given to the lords of the mine for the liberal way they have responded to the application made to them to give dues accrued to them, and for remission of future dues during pleasure.

GREAT WESTERN ELECTRIC LIGHT AND POWER COMPANY.—At the extraordinary general meeting on Tuesday (Mr. L. B. Braithwait in the chair) the resolutions passed at the meeting on Dec. 8 were confirmed:—1. That the conditional agreement submitted to this meeting, and made between this company of the one part, and the Anglo-American Brush Electric Light Corporation (Limited) of the other part, be, and the same is hereby approved and sanctioned.—2. That with a view to carrying the said conditional agreement into effect, the company be wound up voluntarily, and that Mr. Emile Garcke and Mr. F. W. Reynolds be, and they are hereby appointed liquidators for the purpose of such winding up.—3. That pursuant to the Companies Act, 1862, the said liquidators be, and they are hereby authorised and directed to adopt on behalf of this company the said agreement, and to receive paid-up shares in the said corporation as consideration for the property thereby agreed to be sold in accordance with the terms of such agreement, and generally to carry the same into effect.

PETROLEUM INDUSTRY OF THE UNITED STATES.

From very early times the inhabitants of America were aware of the existence of petroleum in their country, and followed the plan of digging pits to collect it, many of which are found at the present day in the oil regions of Pennsylvania. It was not, however, until a comparatively recent date that the true value of the deposits was recognised, the introduction of oil made from coal and shale being that which directed attention to it. When once the great facilities the oil-bearing shales of the United States for the manufacture of oil was discovered, the development of the industry was very rapid. Mr. T. H. Stowell, in his report on the present state of the trade to the United States Geological Survey, states that localities in the United States producing petroleum are in Pennsylvania, New York, California, West Virginia, Ohio, and Kentucky. The wells which are producing are small, and the production chiefly heavy oil, fit only for lubricating in West Virginia. In Ohio the operations are also of comparatively minor importance, the oil here also being heavy. The total production of these two States during the census year, which ended May 31, 1880, was reported to be 224,312 barrels, of which 219,253 barrels were produced in West Virginia and in the Washington county district in south-eastern Ohio, the remainder being produced at Grafton, and at Mecca, in eastern Ohio. In Kentucky, within the past few years, operations have been renewed, but not to any great extent, the production of oil in the census year having been but a little over 5000 barrels. California is attaining some importance as a petroleum producer.

The chief producing localities in the United States, however, are found in the States of Pennsylvania and New York. The wells of the Titusville and lower districts produce a larger total amount of oil per day than the Warren and Forest county wells, yet the wells of the latter localities average an output of five barrels per day, against one and a half barrel per day each in the former district, the difference in the production being due to the greater number of wells. To speak accurately, there are no abandoned localities in the oil region. Wells in large numbers have been abandoned, and many districts may be said to be comparatively deserted and their production fallen off, but no district where oil has been produced in any quantity has yet been abandoned. It is possible that the wells in some districts may so completely give out that the whole district may be abandoned; and, indeed, such an event is not impossible with the whole region, but such is the character of the industry that it is not possible to determine in any way the probability of an occurrence of this nature. The same truth holds good with regard to endeavours to ascertain localities which may be productive in the future. It is probable that at any time the existence of such a deposit may be discovered anywhere within the limits of the oil belt even where its existence is least expected. Of course it is safe to say that as the demand for petroleum increases and the present production declines other localities that now afford indications of oil will be developed, and Kentucky, Tennesse, Ohio, Colorado, and Nebraska may become productive in the future, but it is not possible to make any statement of a positive character regarding such future production.

The circumstance which have governed oil operators in locating oil property have been many and various. The chief guide that for years has been and is now relied upon in locating oil property is the success or failure of former operations in the locality under consideration. It having been once decided that the reservoir of oil is beneath one well, it is reasonable to conclude that another well, drilled in close proximity stands a fair chance of tapping the same reservoir. With regard to the manner of producing, the well having been completed to the first sand or oil-bearing rock, if a good volume of oil is obtained the drill may be stopped and pumping begun; but if neither at the first nor second sands is a good flow of oil obtained, the well is drilled through to the third sand. The result will then be one of three things—the well will be a dry hole, or it will be a small producer, requiring to be pumped, or it will be a flowing well. In the latter case all that is necessary is to attend to the oil, the well will take care of itself.

The first flowing well was struck in the Oil Creek region as a result of very deep drilling on the part of the operator. At the depth of 500 ft. a vein of oil was struck, which lifted the heavy tools clear out of the well, and poured forth with amazing force, rising to a height of 60 ft. above the surface of the ground. The period of productiveness of an oil well is very uncertain, and almost all that owners may be positive of is that the well is producing. As a general thing, a large flowing well is but short lived, while a pumping well of moderate size is more likely to have a long life. The business of oil refining, as carried on in the United States at present, is chiefly under the control of an organisation called the Standard Oil Company. It was organised at a time when speculation was at its height in the oil trade, and it brought order out of the confusion then existing. It is well nigh impossible to ascertain anything regarding its internal management with precision; it is, however, claimed by its supporters that its organisation was simply a uniting of forces of a number of the leading refining interests. At the present time several other refineries outside the Standard organisation are assuming a position of importance, but some of these may be at any time merged in the latter company, as has often been the case before.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, has been:—Bombay (Limited), 6¹¹⁄₁₆; British Gas Light (Limited), 42; Buenos Ayres, New (Limited), 13¼ to 13¾; Commercial Consolidated, 252¼; ditto, New Stock, 190; Continental Union (Limited) Original, 40; ditto, New, 1869 and 1872, 27¾ to 28¼; ditto, Seven per Cent. Preference, 33 to 33¾; European (Limited), New, 11½ to 11⅝; Gas Light and Coke, A, Ordinary, 222 to 223¾; ditto B, Four per Cent. Maximum, 56 to 57; ditto H, Seven per Cent. Maximum, 149 to 150; ditto J, 10 per cent. Preference, 237 to 238; Imperial Continental, 205½ to 205¾; Metropolitan of Melbourne Five per Cent., 1908, 103¼; ditto, 1910, 103½; Monte Video (Limited), 16¾ to 17⅛; Oriental (Limited), 8⅛; South Metropolitan, B, 220½ to 221. Gas stock idle, very little business doing.

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance, British and Foreign, 37¾ to 38; Atlas, 15¾; City of London Fire (Limited), ⅛; City of London Marine Insurance Corporation (Limited), ¹³⁄₁₆; Commercial Union, 16½; British and Foreign Marine (Limited), 22; Fire Insurance Association (Limited), 5⅛ to 11⅛; Imperial Fire, 151; Indemnity Marine, 4 to 5; London, 52¾; Marine (Limited), 27; Merchants' Marine (Limited), 1¹⁵⁄₁₆; North British and Mercantile, 26¾ to 27; Thames and Mersey Marine (Limited), 10¾ to 10⅞; Universal Marine (Limited), 7⅛ to 7¼. Insurance steady, except marine companies. Universals easier.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. WM. ABBOTT, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 22	Foxdale	100	£ 8 17 6	Walker, Parker, and Co.

BLACK TIN.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 20	Phœnix United	22	£41 12 6	Trethellan Co.

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ESTABLISHED UPWARDS OF FORTY YEARS.

MESSRS. WATSON BROTHERS, in referring to their public Circular in the *Mining Journal*, would also observe that they BUY and SELL SHARES at the *nett* market prices of the day in all well-established and respectable Mining Companies; also, in English and Foreign Funds, Railway Stocks, &c.

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COPPER ORES.

Sampled Dec. 3, and sold at the Royal Hotel, Truro, Dec. 18.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols.	113	£1 1 0	South Caradon	62	£2 0 0
ditto	109	1 1 0	ditto	60	2 17 0
ditto	108	1 1 0	ditto	52	2 9 0
ditto	105	1 1 0	ditto	33	2 18 0
ditto	101	1 1 0	ditto	12	11 7 6
ditto	93	1 2 6	Bedford United	61	1 17 6
ditto	85	1 1 0	ditto	60	3 4 6
ditto	68	2 4 6	ditto	55	3 6 0
ditto	40	4 1 6	Gunnislake (Clitters)	72	3 9 6
ditto	28	2 19 6	ditto	70	3 16 6
Wheal Crebor	94	2 18 6	Holmbush	76	1 0 0
ditto	93	2 18 6	ditto	48	1 5 0
ditto	92	2 17 0	ditto	6	5 18 0
ditto	91	1 6 0	Glasgow Caradon	60	2 4 0
ditto	84	2 6 6	ditto	50	1 15 0
South Caradon	66	2 18 0	East Caradon	25	4 0 0
ditto	63	2 5 6			

TOTAL PRODUCE.

Devon Great Con.	850	£1154 5 6	Gunnislake (Clit.)	142	£ 517 19 0
Wheal Crebor	494	1122 15 6	Holmbush	130	171 8 0
South Caradon	350	995 2 6	Glasgow Caradon	110	219 10 0
Bedford United	176	489 7 6	East Caradon	25	100 0 0

Average standard ..... £ 87 8 0 | Average produce 5¾
Average price per ton £2 2 6
Quantity of ore ..... 2237 | Quantity of fine copper, 124 tons 19 cwts.
Amount of money ..... £ 4770 8 0
LAST SALE.—Average standard, £ 78 14 0 | Average produce 7¼
Standard of corresponding sale last month, £ 87 18 0 | Produce, 5¾

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	637	£1334 14 9
Nevill, Druce, and Co.	507½	770 13 6
Williams, Foster, and Co.	625	1490 8 0
Elliott's Metal Company	280½	627 12 3
Charles Lambert	187	546 19 6
Total	2237	£ 4770 8 0

NO SALE on Thursday last.
Copper Ores for sale at Tabb's Hotel, Redruth, on Thursday next.—Mines and parcels.—Mellanear 628—Wheal Comford 104—South Tolcarne 72—West Wheal Seton 60—Camborne Vean 24—North Wheal Busy 14.—Total, 902 tons.

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NEW ILLUSTRATED CATALOGUE of High-Class Watches and Clocks at Reduced Prices sent Post Free on application to E. DENT & CO., Makers to the Queen, 61, Strand, London, W.C.; or 35, Royal Exchange, E.C.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF W. B. SCOTT, Esq., H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 29th and 30th days of January, 1885, and CANDIDATES INTENDING TO PRESENT THEMSELVES AT SUCH EXAMINATION must, on or before the 15th day of January, notify such intention to the Secretary of the Board of the above-mentioned District, from whom all information as to particulars can be obtained.

By order of the Board,
W. BLAKEMORE, Secretary.

Shelfield, near Walsall,

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF JAMES WILLIS, Esq., H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 8th and 9th days of January, and CANDIDATES INTENDING TO PRESENT THEMSELVES AT SUCH EXAMINATION must, on or before the 5th day of January, notify such intention to the Secretary of the Board of the above-mentioned District, from whom all information as to particulars can be obtained.

By order of the Board,
GEO. SOUTHERN, Secretary.

19, St. Cuthbert's-place, Gateshead-on-Tyne.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

MINE "EL CALLAO," GUAYANA, VENEZUELA.

32,200 SHARES.

Gold in bars produced in the month of October, 1884, and remitted to Messrs. Baring Brothers and Co., London—12,119·23 ozs.

DIVIDEND distributed for each Share, 20 francs.

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London: Kelly and Co. Publishing Office, 51 Great Queen-street W.C.

Notices to Correspondents.

Avis Important—Aux Abonnes Etrangers du Mining Journal.—Le prix de l'abonnement au *Mining Journal* pour tous les pays de la Convention Postale Internationale est de (*l.* 8s.) 36 frs. le port compris. L'abonnement est payable par anticipation, ou par mandat postal international ou par autre mandat sur Londres. L'abonnement continuera sauf avis contraire.

German Subscribers.—Any subscription terminating at the end of the current year can, if preferred, be renewed by remitting to our office 1*l.* 8s. by international postal order; but the preferable course is to obtain it through the German Government. Every German Post Office is authorised to receive subscriptions for the *Mining Journal*, so that the subscriber has merely to give notice at the Post Office nearest his residence, and the prompt and regular supply will be guaranteed.

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Belt Copper—"Speculator" (Threadneedle-street).—It was not resolved to wind-up at the meeting on Dec. 16. No notice convening the meeting was sent to us, or it would have been reported gratuitously in the usual way. The company's printed report of the proceedings was sent to us on Thursday; but as this did not embody or give the substance of the resolutions submitted, and conveyed no useful information, we declined to publish it except as an advertisement. It is understood that it was resolved to borrow 30,000*l.* upon debentures embodying terms which may give the subscribers 25 per cent. interest, and considering the circumstances of the case, and the lamentable position and prospects of Lake Superior copper mining, the Chairman (the Earl of Denbigh) is entitled to the congratulations of the shareholders upon being able to state that two-thirds of the amount had been secured.

Calculation of Interest—"H. J. C." (Newcastle).—It is not at all necessary to use tables to calculate the interest payable upon a given amount for a given number of days at a given rate per cent; and when the amount and the interest are fractional the tables are a hindrance rather than an assistance, and the results are no more accurate. Suppose, for example, you require to know the interest for 21 days at 3½ per cent. on 157*l.* 12s. 6d., the result can be obtained more quickly by calculation than by reference. The rule is—multiply the amount by the days and by the rate per cent. Then multiply the product by 2¾ (more accurately 2·74), and divide by 100,000. The result will be the interest sought in pounds sterling (or in dollars, francs, guilders, roubles, or whatever other unit be used) expressed decimally. Thus 157*l.* 12s. 6d. is 157 pounds 6 florins and 1 sixpence, therefore equal to 157·625*l.*, and 3½ is 3·5 per cent. Then 157·625×21×3·5=11,585·4375. Neglect the decimals. Then 11,585×2½=31,858; and 31,858 divided by 100,000=0·31,858; that is, 3 florins and 18 farthings, or 6s. 4½d., which is the interest for 157*l.* 12s. 6d. for 21 days at 3½ per cent. Had the principal been 157 francs 62½ centimes, the interest would have been 31 centimes and 8 10. If dollars and cents, then cents and parts of cents and so on. It has several times been explained in this column that in reading decimal parts of the pound sterling, the first figure after the point is florins, that the figures in the second and third place are farthings, ·025 representing 6d.; hence ·231 would be 2 florins 3 sixpences 6 farthings=5s. 7½d.

Wire Rope for Angle Shaft.—Will any correspondent kindly give me some information through the Journal as to the best kind of wire ropes for hauling in mines where a straight shaft turns into an underlie? The steel ropes we get do not stand well, they require to be more flexible.—E. H. T. P.: *Charters Towers, Queensland, Nov. 7.*

Received,—"W. M.": Answered by post—"Silver-Lead": You can see the process in operation by writing to the Sheffield Smelting Company, Sheffield—"R. and J."—"F. H." (Norton Cross): Inserted—"A. R." (Gateshead): Correction attended to.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, DECEMBER 27, 1884.

THE WAGES QUESTION.

In a few more days the year 1884, with all its vicissitudes, its business struggles, and its commercial and manufacturing depression, will have been numbered with the past, and the busy world will once more buckle on its armour, with brighter hopes, for a renewal of the conflict. It would, of course, be folly to attempt to deny the fact that there has been considerable depression in almost every branch of manufacture; but it has not been nearly so severe as some would wish us to believe, and the great pinch of the depression has been felt more by the manufacturer, consequent upon the low prices which have prevailed, than the mechanic and artizan, whose wages have been pretty well maintained throughout the year, notwithstanding the depression. Statistics show that whilst there was a decrease in our import and export trade last year of nearly 40,000,000*l.* as compared with the trade of the previous year, the exports of steel and iron rails and other metal goods have been considerably better than any year from 1873 up to 1880, so that the decrease has been more in value than in quantity, which has tended to keep the wages rate at its present high level. Whilst this has been the case with regard to the year 1884, there are indications of a steady revival of trade in the New Year if our great industrial classes will but read the significant signs of the times, and not throw away the favourable opportunity again presented of proving the superiority of England as the greatest producing nation of the world. Thanks to the enlightened policy of our Free Trade principles, we have every known part of the globe as our customers, whilst in many quarters we may be said almost to hold a monopoly, no other nation being able to compete with us in the supply of the manufactures which are required for the development of sparsely populated districts.

But whilst we gladly recognise this better prospect for the New Year, the vitally important question is rapidly pushing itself to the front whether the present high rate of wages can be maintained, having regard to the much lower scale which prevails throughout the Continental States, and the constantly growing competition with us as a manufacturing nation, and the extremely low prices which rule. For many years the nation enjoyed unexampled prosperity, and the wages of the operative and mechanic crept up by degrees, until hundreds, if not thousands, of the best class of ironworkers and mechanics had far higher salaries than many of the so-called "professional" men. In addition to this much of the legislation of the past ten years has been in favour of the industrial classes, and many of the restrictions imposed have largely increased the expenses, to the manufacturer, in the prosecution of his business. Whilst these facts cannot be ignored or gainsaid, it is singular to state that, with few exceptions, the rate of wages which ruled during the prosperous year of 1872 have been maintained, and that in spite of constantly falling markets and now lower prices, so far as steel, and iron, and tin-plates, and other of our staple industries, than ever previously known. And not only has the industrial class continued to receive exceptionally high wages, the purchasing power of money, owing to the low prices of the chief necessities of life, has been higher than ever previously known, so that had the great body of the working classes been frugal and saving, they should have been well prepared to meet any relapse, and there should not be anything like the distress and privation which is said to prevail. Mr. Jeans, the able secretary of the Iron and Steel Institute, read last week before the Statistical Society, at the Royal School of Mines, some important official figures which confirm this view. Mr. Jeans computed that the 14,000,000 people belonging to the wage class in Great Britain earned during the year 1881 over 580,000,000*l.* sterling as wages, or an average of about 42*l.* per head, which is an increase of about 10 per cent. over that of 1867, or an increase of over 50,000,000*l.* sterling. These figures show a vast extent of our manufactures, and the momentous consequence of a rise or fall of 10 per cent. in the wage rate of the kingdom. Since 1881 a few reductions have taken place in some of the staple industries of the kingdom, but at the present moment wages in this country are about 40 per cent. higher than they are in Germany, and about 50 per cent. higher than in France; whilst our Continental competitors are not hampered in the race with restrictions under the Factory and Workshops' Act, and the Employers' Liability Act, to anything like the extent in England. Great Britain can maintain its present proud position as the chief manufacturers of the world provided she is placed upon equal terms, but the higher rate of wages and other disadvantages, considerably militate against such national supremacy.

Whilst we think there is hope for a steady revival of trade in the New Year, we have at present to deal with facts as we find them. We are still in the midst of great commercial depression. Production has for some time past been greater than consumption, hence stocks have accumulated, and low prices prevail. Extended Christmas and New Year's holidays, which, in other words, mean suspension of operations, are the order of the day: 100 mechanics were dismissed a few days since from the London and North-Western engineering workshops, and the same number from the Great Western works, consequent upon the depressed state of trade, and many of our large manufacturers are compelled to materially reduce their establishments. These are significant indications. In addition to this we find that hundreds of tons of railway and tramway rails are being imported from Germany at lower figures that can be manufactured in England, and iron and steel girders, &c., used in building operations are obtained from the some sources. All this tells of the severe competition which exists, and the hard manufacturing struggle which the nation has to endure. The wages question is vastly more momentous to England than to any of the Continental States, for our operative classes constitute nearly a fourth of the entire population, whilst the European States depend far more upon agriculture. The First, and so-called "Great," Napoleon once sarcastically termed England a "mere nation of shopkeepers." We are now the greatest manufacturing nation in the world, using nearly a third of the united horse-power of the globe, and our ships earning more than one-half the entire freights of the world.

But whilst we have this supremacy, our strength should not make us indifferent to our best interests, nor disregardful of the fact that other nations are making rapid commercial strides, and are more severe competitors with us than ever. It is obvious that the present high wage rate, compared with that paid in other nations, militates much against us in the great manufacturing race, and it is this principally which prevents our manufacturers from successfully competing with our continental makers in steel and iron goods. The fact is being rapidly forced upon our great manufacturers, that if we are to maintain our supremacy there must be a moderate reduction in the scale of wages. It may not be palatable to the great industrial classes, but they will assuredly have to bow to the inevitable. The great shipbuilding yards of the Clyde, the Tees, of Sunderland, &c., are already beginning to recognise this fact, and some builders of steel and iron ships have given notice to their operatives of a reduction of wages to the extent of 5 and 7½ per cent. We trust the men will see the policy of submitting to these terms in their own interests. Nothing but absolute necessity compels the step, and even when adopted the wage rate will still be considerably higher than a few years since, and much higher than our continental neighbours.

REPORT FROM CORNWALL.

Dec. 24.—In commencing our review of the Western Mining of 1883 we expressed our thankfulness that a year which had hardly been relieved by a single bright spot had drawn so near its close, and we coupled the hope that 1884 might be better, with the opinion that it could hardly be worse. We might use almost precisely the same language with regard to the year that is now entering upon its closing week. Again, there is hardly a bright spot to cheer the retrospect; again we feel that things have come to such a pass that there can hardly be any lower depth of inactivity and depression for us to fathom. And yet although December leaves us distinctly in a worse position than January we do seem to feel somehow that 1884 has brought us nearer the revival that must come some day, and we recognise that if the progress made in any one direction during the past 12 months has been very slight, yet that the ground has here and there been cleared for future advance. So, too, we find the need of economy and economical improvement effectually if sternly enforced by necessity. And, again, with regard to the exterior conditions under which mining is conducted in this country, though nominally they are unchanged, it is impossible not to see that ideas have gradually taken possession of the public mind that some day must bear fruit. The crop has not been kindly, but the soil is not all barren.

The Protection, or as it is now more euphoniously called, the Fair Trade, cry has been raised at intervals during the year, but without very much result, and without, so far as can be ascertained, winning any new adherents, although it has been brought forward somewhat prominently in the course of a political campaign in West Cornwall. By the large majority of those interested in mining enterprise it is recognised that to place protective duties on foreign metals would inevitably lead to a general protective system, which would deprive mining of any advantage it might possibly derive from duties on tin and copper, if they stood alone, and would, moreover, by increasing the cost of production of our manufactures limit our foreign trade far more seriously than any imposts put on them by foreign nations. Those who have thought the matter out most closely recognise that the only way to meet foreign rivalry in the matter of our metals is to work our mines as economically as possible, and to relieve the industry from the oppressive burdens which, by the short sightedness of some mineral lords and the greed of others, together with the unscrupulous action of a certain class of speculators, are cast upon it. A thorough reform of the dues system and its concomitants would be of more material assistance to home mining than any possible tariff of protective duties. As to economy, there is unquestionably considerable room for improvement in some of our dressing details—notably in connection with stamping. It is much to be regretted, too, that another year has passed without any attempt on the part of any mine to undertake smelting operations.

The dues question, however, has excited a good deal of attention, though we cannot say that much advance has been made. There is perhaps a more general conviction on the part of the adventurers that the only equitable way of dealing with this matter is to levy dues on profits only. The lords, however, have shown very little disposition to come to these terms, although it was at one time confidently said that some of them would do so. There has been, we admit, a fair amount of liberality shown in the reduction and remission of dues, in which the Duchy authorities have been notably prominent. Mr. Basset also has shown great liberality in his contribution towards the charges at Carn Brea. But remissions, reductions, and grants do not meet the case. Mining finance between landlord and tenant should regulate itself and not be subject to casual generosity or caprice. As a middle term between the present system and the assessment of dues on profits, it has been suggested that dues should cease in calling mines. This would not be wholly satisfactory, but it would be something, and yet there is nothing done.

The events of the year, indeed, have made it abundantly evident that the whole question of mine leases will have to be dealt with as a part of land law reform. We need only quote the case of Wheal Jane—though it does not stand alone—in proof of that. Here, after the adventurers had spent something like 30,000*l.* out of their own pockets in working that mine in depth, Lord Falmouth, who had meanwhile had his dues, refused permission to work above the adit to the shareholders, and the mine was abandoned, throwing a large number of hands out of work. The Legislature clearly must aid.

Dolcoath, as usual, has played the most prominent part in our local mining affairs. The development of mineral wealth in depth still continues, and practically there is no apparent limit to the productiveness of this famous "bal." It is now by far the deepest mine in the country, having reached a depth on the lie of the engine-shaft from surface of just 415 fathoms—2470 ft., or only 170 ft. short of half a mile, while it has produced in one quarter no less than 592 tons of black tin. In other words, so far as we can estimate with the materials at present before us, something like a fifth of the whole of the black tin raised in the county comes from this one mine. But if Dolcoath has its success it has—as we all know—had its troubles also. The "fine" of the previous year left a legacy behind it, in the decision of the rating authorities of the district to levy rates thereon. Legal proceedings were taken, the demand being naturally resisted, but eventually the matter was referred to Mr. T. S. Bolitho; and he settled the question by deciding that the mine might reasonably be expected to let for 1 18th dues with 7½ per cent. added, and assessing it in that amount.

re has not been any very notable advance, as a rule, in mining ppliances. Mechanical boring continues to be developed with success, and to make steady progress. In mining mechanics the chief vent of the year has, however, been the remarkable amount of work done by Mr. Husband's oscillating stamps, which have shown most clearly that the old gravitation stamps have had their day, and how we may economise in dressing to the best present advantage.

There is not much to note in connection with working operations generally beyond these points. Nothing has been done in the way of introducing safety cages or catches for preventing accident in the ascent and descent of mines, which attracted so much attention last year, nor does it seem at present likely that any mechanical appliance will be adopted, but that reliance will be placed, as in the colliery districts, upon close supervision. The heavy rains of the past winter made the water charges heavy, but there has been compensation for this in the exceptional season since. The cessation of the dynamite monopoly has likewise been a great boon to the larger mines, though efforts have of late been made, and only too successfully, to force the price up by a "dynamite ring."

A year that has been so unsatisfactory for the adventurer was sure to react seriously upon the working miner. Early in January there was much scarcity of employment, and though some months later on there was a little improvement it was very slight, and was soon succeeded by a far more than merely compensative reaction. The close of the year has brought with it not only want of employment but its inevitable concomitant—a reduction in wages. Altogether there must be at this moment some hundreds of mine workers of various classes out of employ, and with no good prospect of getting any, while emigration no longer affords the promising outlet it once seemed to do.

Though the fluctuations have not been numerous, the course of the tin standard throughout the year has been sadly disappointing, and singularly opposed to all conclusions fairly drawn from statistics. It is not at all too much to say that for nine months out of the twelve the figures of supply and demand have been such to justify expectations of improvement that have not been realised—why or how appears to be really inexplicable. 1883 closed with a rise in the tin standards which made the drop in the year 7*l.*; but this ground was lost again in the first week of 1884, and thence until the end of April—although there was some slight improvement in the interim—the position, so far as the standards were concerned, was practically unaltered. There then came an advance of 2*l.*, which made the figures 79*l.* to 83*l.* Before May closed, however, the gain was lost; early in June there was another drop of 2*l.*; and from that time, with the exception of a slight reaction in October, the course of affairs has been in the wrong direction. Between Sept. 30 and Oct. 25 more changes took place than in all the year beside. The last advance of 3*l.* on Oct. 20 was followed by a drop of 2*l.* on Oct. 25, bringing the standards down to 67*l.*—71*l.*, a fall of exactly 10*l.* since the year opened.

The copper standard has been marked by a more constant decline than that of tin, and has been still more disappointing, especially in regard to the mines which turn out large quantities of low produce ores. In 1883 the best price was in March, when a unit figure of 11s. 1¾d. was recorded; the worst in December, a unit of 9s. 9¾d. But the lowest figure of 1884 is far below this amount, a unit price of 7s. 9d. only was realised at the first sale of November, when the ton of ore copper made only 38*l.* 15s. This was a very serious falling off from the highest figure of the year, reached at the first sale in January, when the unit was 9s. 10¾d., and the ton of ore copper 49*l.* 9s. But the decline in the standard at last week's sale was 1*l.* 15s., and this brought the unit price down to 7s. 2d., and the ton of ore copper to 35*l.* 16s.—the very lowest price on record. Can we be worse?

The copper returns of the year naturally, in the main, follow suit. Probably no year since copper mining became a regularly developed branch of local mining industry has produced more unsatisfactory results: 1882 had shown a very gratifying improvement over 1881, which 1883 failed to maintain; but 1884 has fallen off still more notably. Thus, while 1882 sold 42,058 tons of copper ore for 150,395*l.*, 1883 only totalled 39,273 tons, realising 127,600*l.* But during the present year the quantity sold has only been 35,591 tons, and the amount of money realised only 95,741*l.* Production and price have both declined, but the latter, as in the preceding year, the most seriously. About 30 mines now contribute to our copper returns, though in very unequal proportions, and among these the mines of Devon are year by year taking an increasingly important lead. Were there anything like encouragement, however, for copper mining, the returns would be very largely augmented, not only from existing mines, but from wide areas of undeveloped ground.

Beyond tin, and copper, and arsenic, which is still produced in large quantities, and the supply of which is practically inexhaustible, there is very little to record. To all intents and purposes the lead mining of the West, in spite of all the anticipations so confidently put forth, is practically dead. At the best it is in a state of suspended animation, and the efforts made to revive it have so far been of little—indeed, no—avail. How much of this failure is due to actual physical conditions, and how much to other circumstances is a point upon which it is difficult to form a definite opinion, but we cannot say that we regard the lead lodes of either country as by any means played out. Iron mining is practically dead, and manganese is only raised in limited quantities.

Of non-metallic minerals the first place is, of course, taken by china-clay, the output of which has been large, but which has suffered its share from the depression of the times. Quarrying has been quiet, save in the slate quarries of North Cornwall, which with railway communication offer excellent prospects of development. Granite quarrying is likely to suffer still more in the future from the rapidly-increasing application of concrete for works of marine engineering.

The use of the local clays on the spot in potteries for various purposes is steadily developing in the direction of art pottery, on the one hand, and of wares of the most strictly utilitarian character on the other—but the former wholly and the latter chiefly in Devon. Why Cornwall should lag behind here it is hard to say. A new development has been made in the adaptation of the lignite of Bovey Tracey to the manufacture of charcoal particularly applicable to sanitary purposes. The beauty of the Plymouth marbles has been admirably illustrated in the decoration of Brompton Oratory.

It is only possible to approximate the number of mines that may be regarded as actually in operation. Two years ago the mines of Cornwall and Devon mustered a "paper" total of 240, but of these 40 had no men at work, and a still larger number had fewer than 10. In January last the names of 100 Limited Liability mining companies were expunged from the register, and since then others have followed, so that the list has been somewhat extensively weeded. The process, however, has by no means come to an end. Nominally at the present moment there are about 140 mines in the two counties; but it would be an exaggeration to say that there were over 100 in real *bona fide* active operation. Further than this we do not care to particularise; but there is no very great rashness involved in the prophecy that of this 100 there are several with a very shaky existence. It will be seen that, as compared with our last year's report, the figures involve a falling off of fully 20 mines from the working list as it stood at the close of 1883. And it must be borne in mind that there have been a few new starts, and some promising ones.

Among the mines which have dropped out during the year we have Wheal Jane, already alluded to, Cornwall Great Consols, East Chiverton, Medlyn Moor, Monkstown, New Great Wheal Vor, North Penstruthal, Perran Consols, Perran, Wheal Alfred, Polrose, Trevarren, Wheal Britannia, and Wheal Hony and Trelawny. But this is irrespective of the long roll of mines that, like Great Wheal Polgooth, had little more than a paper existence, and does not include several that only burden and do not in any way enrich the present share lists.

We are not surprised to find a falling off in the list of dividend mines; but it does seem rather surprising that, all things considered, it is not greater. The 14 dividend mines of Cornwall and Devon of 1882 fell to 11 in 1883. They are now reduced to 10; and the amounts declared, so far as they are publicly known, are approximately as follows:—Concerning Wheal Eliza, indeed, we have no precise information, but probably we shall not be far out if we put the profits there at something like the figure of 1883. They will hardly have been more; and if they are less the difference will help to make up the returns from various small concerns of which, as a rule, the public hear nothing.

Mines.	Shares.	Per Share.	Total.
Bedford United	12,000	£0 2 0	£ 1,200
Dolcoath	4,700	4 11 0	21,385
East Pool	6,400	3 14 0	22,200
Levant	2,500	0 2 6	312
Mellanear	10,000	0 0 6	250
South Condurrow	6,123	1 3 0	7,041
Wheal Agar	6,000	1 2 6	6,750
Wheal Grenville	6,000	0 10 0	3,000
Wheal Eliza	1,024	5 10 0	6,123
West Kitty	6,000	1 8 0	8,400
Total			£76,661

From these figures (which it must of course be understood do not profess to be minutely accurate) it would seem to be probable that the dividends of 1884 are really about the same amount as those of 1882—the very strongest proof of the efforts that have been made to meet the depression, and of the inherent vitality of Cornish mining. Four dividend mines of 1883 do not appear in the list of the present year—Killifreth, Phœnix, South Caradon, and Wheal Crebor. On the other hand, there have been three additions—Bedford United, Levant, and Wheal Agar.

One of the most satisfactory events of the year in connection with this part of our review has been the entry of this latter mine into the Dividend List. For something like half a century the adventurers in Wheal Agar worked on steadily hoping for better times, and no one will grudge them their tardy reward. Since dividends set in the mine has been thrown back by accidents, of which indeed it has always had its full share; but there is no doubt that these are merely passing clouds, and that Wheal Agar has a long and prosperous career before it. As we write there are good rumours to hope that several other mines are on the verge of similar success, promising exceedingly well for the coming year.

The draft on capital in the way of calls and new ventures is not so large as for several previous years. For one thing there has been little to encourage fresh speculation or the introduction of outside means. Yet going concerns of promise have been as a rule well stood by, and even in these dark days a few new concerns have had their birth. We put the gross loss of 1883 at something like 250,000*l.*; while that of 1882, in consequence of the number of new starts, did not at all fall short of 300,000*l.* Now it is impossible to be very accurate in this kind of calculation. In Cost-book mines the existence of relinquished and forfeited shares is always liable to vitiate an estimate, and in Limited Liability companies there is often a very great uncertainty as to how far the nominal share statement represents the actual. All we can do is to reckon as nearly as may be with the materials at hand, and doing this we believe we may place the total sum raised by calls, &c., at something like 125,000*l.* It may be a few thousands less or more, but we do not think the variation can be of much consequence. The loss, therefore, of 1884 is somewhere about half that of 1883, and about 50 per cent. in excess of the dividends.

The mines which have called during the year are between 40 and 50 in number, among the more important being:—Anderton, Cathedral, Cook's Kitchen, East Caradon, Gawton, Marke Valley, Mount Carbis, New Cook's Kitchen, New Kitty, New Holmbush, New Terras, North Busy, Pedn-an-drea, Prince of Wales, Russell United, South Penstruthal, South Crofty, South Frances, Trebartha, Trevaunance, West Caradon, West Crebor, West Poldice, West Frances, West Peevor, West Seton, Wheal Basset, Wheal Coates, Wheal Jane, Wheal Uny.

Every year there are some changes in the roll of our older mines, but still we may apply with substantial accuracy of general results, the test of the comparative position of mining enterprise drawn from the contrast of the selling prices of several leading ventures, over the last five years. The individual figures are only intended to be roughly approximate, but they are sufficiently accurate to answer our present purpose, and as they represent just a third of our active mines of all classes, they afford a fair comparative index. Substantially the value of mining property remains very much the same at the close of this year that it did at the close of 1883. Two mines, however—Dolcoath and East Pool, are selling for as much as all the others in our list put together.

	1880.	1881.	1882.	1883.	1884.
Carn Brea	£ 110,000	£ 156,000	£ 48,000	£ 12,000	£ 12,000
Cook's Kitchen	26,950	66,150	79,225	21,460	25,950
Dolcoath	244,872	382,344	290,030	293,750	329,000
Devon Gt. Consols	164,040	57,040	56,240	43,510	20,480
Bedford United	11,583	20,270	21,503	19,500	16,500
Botallack	13,600	6,403	4,000	—	3,600
East Pool	230,400	283,000	320,000	249,200	249,800
East Caradon	12,288	9,216	9,201	1,535	1,550
East Lovell	10,480	7,168	2,001	1,500	728
Glasgow Caradon	45,000	30,000	30,000	20,000	10,000
Gunnislake	40,960	43,520	35,840	17,940	5,000
Gawton	11,500	12,000	6,000	1,800	4,500
Killifreth	1,000	10,800	19,500	9,000	5,250
Marke Valley	18,000	13,000	4,500	5,500	4,500
Mellanear	50,000	50,000	45,000	2,500	10,000
Phœnix United	30,000	39,000	30,000	18,000	19,500
South Caradon	33,280	18,920	16,660	43,750	37,500
South Condurrow	67,358	70,414	64,292	61,230	52,000
South Crofty	22,000	20,000	20,430	10,215	7,150
South Frances	51,000	72,000	51,000	45,000	36,000
Tincroft	126,000	111,000	37,500	27,000	36,000
West Basset	93,000	90,000	39,000	18,000	10,500
West Frances	22,528	35,840	16,364	17,408	46,080
West Seton	22,000	18,000	42,000	10,410	7,200
West Peevor	50,000	43,500	22,500	7,500	1,200
Wheal Agar	37,500	84,000	105,000	66,000	108,000
Wheal Peevor	84,000	34,500	13,500	6,000	1,850
Wheal Kitty	19,428	2,150	7,500	4,295	3,500
Wheal Owles	16,00	11,000	16,000	—	—
Wheal Crebor	60,000	51,000	32,500	27,000	12,000
Wheal Grenville	66,000	69,000	48,000	36,000	37,500
Wheal Sisters	12,000	15,000	7,500	3,000	—
Wheal Uny	13,432	14,336	20,500	7,100	1,000
Total	£1,976,794	£2,026,628	£1,577,271	£1,199,093	£1,114,638

It is very strange to notice how slow people are to learn. Although the Metalliferous Mines Acts have been heedfully administered for years, there are still numerous breaches of its provisions, and 1884 has seen several prosecutions for violations, which in most cases arose out of carelessness, but which, nevertheless, in the interests of the mining community, could not be overlooked. From a criminal point of view, however, the record of the year is decidedly a satisfactory one—very so, when brought into comparison with the gross frauds both in the country and Metropolis in 1883.

The obituary of the year has not been a very long one in connection with local scientific and mining interests. Mr. R. Davey, once M.P. for West Cornwall, has passed away at a good old age, full of years and honoured memories—the last of his generation of a family that was long associated with some of the palmiest days of Cornish mining. Dr. Barham, too, of Truro, long an active and leading member of the Royal Institution of Cornwall, and a zealous worker in the cause of its scientific education, has died at the ripe age of four score.

The death roll of the mines is not a heavy one. There have been probably quite an average number of casualties; but none of so overwhelmingly serious a character as the dread disaster at Wheal Agar, which has made 1883 so fatally memorable.

The efforts made to effect a *rapprochement* between some of the county societies have at last borne good fruit, and the Mining Institute and Miners' Association now form one body, as the Mining Association and Institute of Cornwall, and have chosen as their first President Lord Robartes. The scheme under which the amalgamation has been effected has been thoroughly worked out, and the result of the union is certain to be both an economy of resources and increased effectiveness of results. It has from time to time been suggested that the movement might be carried further and embrace in one form or another the three other scientific and practical societies of the county—the Royal Institution, the Royal Geological Society, and the Polytechnic, and probably in some respects united action would be found feasible in certain well-defined directions. We do not, however, believe it would be possible or advantageous to go the length of amalgamation. Each association has work to do that it can best achieve, and that lies beyond the sphere of the others.

All these societies have done good work during the year. The Polytechnic has had a good exhibition under the presidency of the Earl of Mount Edgcumbe; the Geological Society has again at its head Mr. Warington Smyth, F.R.S.; and the Royal Institution has in its chair Mr. A. P. Vivian, M.P. In the summer the Geologists' Association of London, under the presidency of Dr. Hicks, paid a week's visit to South Devon, making Plymouth their centre, and had a very pleasant and profitable time.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 24.—During the last few days there has been a better run on house coal, owing to the fact that the pits, as a rule, will be closed for several days, whilst the mineral traffic on the railways will also be put on one side in favour of the merchandise and passenger business peculiar to the season. Rather more coal, it may be said, has lately found its way to the Metropolis, but the prices at the pits remain unaltered, although the merchants' charges to consumers are at the usual winter rate. Of course the colliery owners who sell direct to the consumers are much better off than those who are not in a position to do so, the former including the Clay Cross, Eckington, Grassmoor, and Pinxton companies, the latter drawing a trade by selling about 2s. a ton below the merchants' quotations. From this it is evident that coal could be profitably sold in the Metropolis at a much lower price than it now is, but no change in that direction can be expected so long as the merchants are able to rule the trade and fix the prices at which the consumers must pay. In all probability, however, the sending of coal from pits in Derbyshire and Nottinghamshire to London, by way of Boston, may make some difference by reducing the carriage rate, and this is now confidently looked forward to. Steam coal has gone off favourably, so far as some of the railway companies are concerned; but for other purposes there is even less doing. Gas coal has been sent away more freely, the companies stocking, knowing that little will be received during the week between Christmas Day and the New Year. Small coal has continued quiet, seeing that the holidays will keep many large mills and other works standing for several days. There is nothing new to report with respect to coke, what is made in the county selling easily, and it is certainly singular that more is not made, seeing that it sells so well and leaves a fair profit.

The Iron Trade of Derbyshire remains in a comparatively healthy state, all things considered, and a fair tonnage has been sent away into other districts for mill, and also for foundry purposes, whilst the local consumption has not materially declined, although such might now be expected to be the case, seeing that the season is over for certain kinds of castings which are extensively made in the county. This is the case with respect to gas and water pipes, for which the Staveley as well as some other works are noted.

In Sheffield in some few departments only have the men been able to do anything like the usual amount of overwork, so that "bull week," as it is termed—that is the week before Christmas day—has been a rather quiet one. The leading steel houses are by no means busy, although there is a fair output of heavy castings for steam vessels, as well as some other kinds of machinery, and also in castings for wheels for mines. The Bessemer department has kept up very fairly, and Cammell's have just received an order for some thousands of tons of rails for the Indian Peninsular line. The company makes rails at their Penistone Works, but the order alluded to will in all probability go to the establishment at Workington. Some of the houses engaged in the production of light machines for garden, horticultural, and agricultural purposes have commenced to give out orders, although few deliveries will be made before early in spring. In heavy machinery and engines business has not undergone much change, and may still be characterised as quiet. It is different, however, as regards railway wagons, for the makers in the district are now well supplied with orders. Boilers and ship-plates are only being manufactured to a moderate extent, as has been the case for some months past, but an improvement is looked forward to early in the New Year. In composite armour plates, however, there is still plenty doing, and there is no probability of any falling off in this important branch, but just the reverse. Some of the cutlery houses have been able to keep their men going on overtime, but of course nothing will be done between Christmas Eve and the remainder of the year. Edge tools have been in such request as to enable the employers at several of the largest establishments to keep their hands fully going. In the silver plated and Britannia metal departments business has been fairly good, as is generally the case towards the close of the year.

On Monday there was a meeting of the Steam Coalowners' Association of South Yorkshire, at the King's Head Hotel, Barnsley, when the usual business was transacted, and the question as to contracts for the supplying of railway companies was discussed.

On Tuesday the 16 men who were charged on a previous occasion with having intimidated and assaulted a number of the men working at the Barrow Colliery, were again brought before the magistrates, The defendants were Unionists, and those they had intimidated and assaulted Non-Unionists, who worked whilst the others were on strike. It was stated that the Unionists had agreed to resume work on the terms which they had struck, and the charges against all of them were accordingly withdrawn.

REPORT FROM LANCASHIRE.

Dec. 24.—The recent severe weather, coupled with the usual extra buying prior to the holidays, has tended towards a little more animation in the Coal Trade of this district, but generally the tone continues very dull for the time of the year, with pits still working short time—in many cases not more than three to four days a week, and supplies plentiful in the market. House fire coal, though moving off rather better than they were, still hang in the market. Common round coal, for steam and forge purposes, are only in poor demand locally; and engine fuel, though meeting with a fair sale, shows no scarcity, except in the very best qualities of slack. At the pit mouth prices average about 9s. for best coal, 7s. to 7s. 6d. for seconds, 5s. 6d. to 6s. for common, 4s. 6d. to 5s. for burgy, 4s. to 4s. 3d. for best slack, and 2s. 9d. to 3s. for common sorts. There is, however, a good deal of very low selling in round coal to clear away stocks. Shipping has been moderate, with good steam coal delivered at the Garston Docks fetching 7s. 6d. per ton, but there is common steam coal to be got at the High Level, Liverpool, at about 7s. to 7s. 3d. per ton.

The proposed sliding-scale arrangements in West Lancashire make only slow progress, and are again adjourned.

There has been little or nothing doing during the past week in the iron and coal Trades, and business may now be said to be practically suspended until after the holidays. Small orders have here and there been given out to cover pressing requirements, but there has been no buying of any weight. For long forward delivery a few enquiries are reported, but these are only of limited extent, as in many cases consumers have not been able to take their deliveries of iron already bought; and, with iron still to come in, which will cover probable requirements over the first two or three months of next year, they are indifferent about entering into further contracts at present. The basis on which business is at all possible just now is so extremely low that some of the leading makers are holding aloof for the present, and local pig-iron makers are quoting 1s. to 1s. 6d. per ton advance upon current rates for extended deliveries into next year. There are, however, very low sellers in the market, and some district brands could be bought readily for long forward delivery at 40s. for forge and 40s. 6d. for foundry, less 2½, equal to Manchester, although the average prices of local and district brands are about 41s. to 41s. 6d., less 2½. In outside brands there is some underselling, but this is chiefly on the part of dealers or holders of secondhand lots, the Scotch and Middlesborough

makers being, as a rule, tolerably firm in their prices. The finished iron trade continues quiet with prices weak, if anything, but without quotable change. Good ordinary qualities of bars delivered into the Manchester district average 5*l.* 10s. to 5*l.* 11s. 3d.; local made hoops, 6*l.*; and sheets, 7*l.* per ton. The condition of the engineering trades remain practically unchanged except that there is the usual slackening off at the works with the close of the year.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 24.—Some of the pits at Cannock Chase have since last report met with a little more enquiry for house coal by merchants who desired to prevent any inconvenience to customers during the holidays. Other than in this respect business has shown but little change, for the openness of the weather prevents any considerable demand. Best deep coal is quoted 10s. 6d., and deep one way and yard coal 10s. at the chief association collieries; best shallow, 9s.; shallow one way, screened deep (house), Old Park, bright, 8s. 6d.; and small shallow, 8s. In actual business, however, these quotations are not realised by quite 6d. per ton. Furnace and forge coal is without much improvement, though consumers are here and there having a disposition to lay in stocks against the eventualities of the weather. During the last three days of this week and part of next the pits will be idle for the holidays. Pig-iron remains in much the same position as a week ago. Compared with the opening of the year prices have fallen nearly 5s. per ton. All-mines are now 57s. 6d. to 55s., and cinder pigs are 37s. 6d. to 35s. The mills and forges have been active during the first half of the week in completing contracts, the delivery of which was demanded before Christmas. Sheet makers carry most orders over into the New Year, but the prices at which new orders are alone to be secured are very discouraging. Sheets (single) have now got down to as low in some cases as 6*l.* 10s.

The receipts of the Darlaston Coal and Iron Company (Limited) during the past year have been 33,548*l.*, and the disbursements 32,082*l.*, so that there has been a narrow profit of 1466*l.* The directors propose to appropriate this sum by paying the remaining moiety with interest of the arrears due on June 30 to the preferred debentureholders, and to carry forward 340*l.* Two additional seams of coal—the Robin's and Four-foot—have been proved since the close of the financial year, and have been partly opened. The company is now ready to do a trade of from 4000 to 5000 tons of fuel per week; but they experience a difficulty in selling 3000 tons. The directors state that the somewhat more satisfactory results of the past year's working cannot be attributed to any improvement in the coal trade, which remains in a depressed condition, but to economy resulting from improved management and mechanical arrangements, and to enlarged output.

Colliery owners in North Staffordshire are complaining this week of the inactive demand. The orders from the ironworks are not large, and the requirements on household account are small. Now, however, that the weather has begun to get more winterly it is expected that the demand for house coals will revive a little. The pig-iron trade is in a stagnant state. Stocks are augmenting, and prices are getting perceptibly weaker. The manufactured iron trade is not much better off. The enquiries on foreign account are being curtailed, and the home consumption only poor. In fact, it has of late been impossible to keep some of the mills occupied more than half time. Quotations range from 7*l.* to 7*l.* 10s. for Crown bars, and inferior sorts can be had at under 5*l.* 15s.

TRADE OF THE TYNE AND WEAR.

Dec. 24.—The Coal and Coke Trades continue in a fairly healthy condition, and it is not expected that there will be much holiday at the collieries this Christmas. There is still a good demand for best steam coal, and that for gas and house coal in Durham is steady. The coke trade maintains a firm tone, and forward contracts for delivery over the half or the whole of next year can only be had at slightly advanced rates. It is not pleasant to observe that the Germans are trying to get import dues put on our coal entering their ports. Free Trade as practised by England has made little progress in the world yet, and we are subjected to severe competition in the coal, steel, and other trades. Last week a fine vessel was taking in bunker coal on the Tyne, she then proceeded to Antwerp for a cargo of steel rails for India. The question of the applicability of the sliding-scale principle for the assessment of coal mines to the poor-rate has been discussed in the Newcastle Exchange during the past week. The Guisbrough guardians have adopted the principle in rating the iron ore mines in that district; this mode of classification was fully set forth in the valuation of the Cleveland mines made about nine years ago. It was based on dividing the mines into three classes, and on the principles of the output of the mine; but the Guisbrough guardians have extended the number of classes, and have added a sliding-scale based on the price of pig-iron. It is a bold experiment, and may lead to good results in connection with the coal and iron trades.

A fire occurred at the Dudley Colliery, a few miles north of Newcastle, last week in the underground stables, which are situated at some distance from the shafts. It was discovered by the night horsekeeper on going to his post. The whole of the ponies, 33 in number, were killed, and some damage was done to the stables, but no serious damage to the workings.

Business is now nearly completed for the year, which as we have often pointed out has been one of great depression in many important branches of trade. In the crude iron trade, and in the coal trade we do not suppose that when the accounts are completed that the output and make will be so much reduced as is generally supposed. The depression has been most felt in the shipbuilding trade, in the marine engine trade, and other trades supplying various goods used in the manufacture of steam ships.

The prospect is certainly better at the close than it was at the beginning of the year, as it is now supposed that the tide has turned. Prices of all kinds have now reached the lowest point, and orders are becoming more frequent, and are given under better conditions.

Shipbuilding is adjusting itself to the altered conditions, but the wages of platers and others must be further reduced before anything of moment is done in the way of putting down new vessels. To keep the yards from Whitby to Blyth in full work needs about 31 orders for vessels monthly, and some time must elapse before this position can be reached.

The Iron Trade is very quiet this week; the Scotch trade is inactive. This encourages the "bearing" element to raise its head again. Makers, however, still adhere nearly to late rates. The iron sold is still about 36s. for No. 3 pig-iron. At the ironworks, it is expected that a week's holiday at least will be taken; and at many of the engineering works it is probable that some of them will have more nearly two week's idle time. The finished iron trade is in a slack condition. The steel trade is in a very dull state. The stock of Messrs. Connal's warrants have been reduced 100 tons for the week.

There is more encouragement in the Shipbuilding Trade, and new orders for a few vessels have been received on these rivers—in all, about ten new vessels have been ordered on the Tyne. There is some hope of a general revival of trade early in the New Year, and it is expected that some of the Government orders will be received here; this, in addition to the increased orders for the mercantile marine, will give a new impetus to shipbuilding. Marine engineers are also receiving new orders, and some of the great engineering works on the Tyne have got orders lately for new locomotives. The triple expansion high-pressure marine engine which has lately been brought prominently forward continues to attract much attention, and some orders have been given out for them. It is, perhaps, yet too soon to pronounce definitely as to the merits of this engine, but it is claimed for it that increased speed is got and also a reduced consumption of fuel as compared with the best surface condensing compound marine engine.

The progress made in the construction of marine engines in late years has been enormous, and the best surface condensing engines are so good that we are very sceptical as to its being surpassed by the new engine. Experience will in time settle the question. Very little progress has been made of late years in improving engines worked at collieries in this district. The old rude so-called high-pressure engine is still almost generally used, with its enormous consumption of fuel. Watt's condensing engine was certainly a much superior engine, so far as consumption of fuel is concerned to this engine. The small progress that has been made in the improvement of colliery engines is certainly not creditable to the great bulk of colliery engineers. It is true that a few good engines has been introduced by Mr. John Daglish, Mr. J. B. Simpson, and others, but their example has not been followed to any great extent. Those introduced by Mr. Daglish are large double horizontal high-pressure engines, worked expansively, and good results have been obtained from them. Mr. J. B. Simpson has also introduced some good pumping and winding engines. At the Elswick Coal Company's works a good winding-engine has been working some time, with satisfactory results so far as the consumption of fuel is concerned.

The Shipping Trade in these rivers continue on the whole to improve, and the number of vessels out of work has been largely reduced. Freights are also improving to some extent, enabling some vessels to make profits, but many have incurred serious losses during the past six months, and it is still but too common to hear of calls being made on the unfortunate shareholders in steamships. The working costs of steamers have, however, been largely reduced, and it is hoped that a gradual improvement in the position of the mercantile marine will now be experienced.

TRADE IN SOUTH WALES.

Dec. 24.—The three first weeks of December, in consequence of their stormy character, have told upon the fortunes of the South Wales ports, and the birds of ill omen are beginning to croak over the decline of trade, and write up "Ichabod" over their office door, in the absence of the raven, to ech "Never more!" The fact is that trade has only been kept back by the weather, and will again assume its accustomed course with the advent of calmer days. The demand for steam coal is good, and prices are maintained. The amount sent away last week from Cardiff was 113,802 tons foreign, and about 20,000 coastwise, with 4183 tons of patent fuel; Newport, 32,458 tons foreign, and about 16,936 tons coastwise; Swansea, 14,302 tons foreign, and about 12,000 tons coastwise, with 4145 tons patent fuel. Swansea is losing its character as a coal port, but it fortunately has a variety of other industries to rely upon. Good colliery-screened steam coal is quoted at from 10s. to 11s.; house coal, from 8s. 9d. to 9s. 3d; small steam coal, 4s. 6d.

It is reported that proceedings will be instituted at the Home Office against the manager of the Ynyshir Steam Coal Company for the violation of General Rule 8 of the Mines Regulation Act, with respect to shot-firing This will be a test case with regard to the views of the masters and men on one side, and the Home Office and mines Inspectors on the other.

The Garth Works, in the Taff Valley, are about to be re-started for the manufacture of patent fuel.

Mr. William Abraham (Allabon) has been offered a sub-Inspectorship of mines by the Home Office, at a salary of 300*l.* per annum, but has respectfully declined it, as he has his eye upon the representation of that part of Glamorganshire in which the Rhondda Valley is situated, and has, in fact, already been selected by some of the colliers as their future candidate. No other candidate can stand a chance against him, if all the colliers stand by him. He is of opinion that it would be better to appoint two sub-Inspectors at 150*l.* per annum each, in preference to one at 300*l.* Intelligent working colliers might do much good as sub-Inspectors, as they would not be afraid to go into every part of the workings in pursuance of their duties, and thus tend to lessen the sacrifice of human life.

John Dodd, the man whose life was so miraculously saved by clinging to the rope at the recent pit accident at Treharris, is a native of Devonshire, and has worked in Pennsylvania, Illinois, and at the Colorado quartz mines. He is 36 years of age. Recently he has worked at the Cwmpennar pits, the property of Sir George Elliot, M.P., which he left for Treharris a few weeks ago.

The Iron Trade of Monmouthshire is reported to be improving. There are now 22 furnaces in blast out of a total of 49. Glamorganshire has only 21 in blast out of a total of 94, of which number nine are at Dowlais alone. Carmarthenshire has only two in blast out of eight, while Brecon has none, although four are in existence. Last week Cardiff sent away 3393 tons, and Newport 3630. Iron ore has arrived at Cardiff from Bilbao to the extent of 2350 tons, with 1790 from other places; Newport received 5793 tons from Bilbao, and 138 from other places.

The Tin-Plate Trade remains flat in consequence of speculators withholding their orders in anticipation of lower prices, though it is manifest that at 14s. per box they are now much too cheap to answer manufacturer's expectations. Wasters stand at 13s.

SHARE-DEALING, AND THE PUBLIC.

In a circular taking the form of an address to the committee distributed as a private and confidential communication among the members of the Stock Exchange by one of their number the writer says:—I venture to address myself to you, the governing members of our institution, upon the present unprecedented stagnation of business, investment and speculative, and I hope to be able to point out some of the causes of, and then the remedies for, the existing state of things. I will address myself firstly to what I consider some of the most serious causes of injury to members of the Stock Exchange. I first beg to enunciate a very serious injury—outsiders having the price furnished them direct from the House by means of the Exchange Telegraph Company's machine; they are thus rendered independent of the Stock Exchange itself, but they subsist and thrive upon the information derived therefrom, and purveyed to them by their single subscription to the tape, avoiding also the responsibility and expense of membership of the Stock Exchange. It can be proved that many if not all of these outsiders, advertising extensively by means of circulars and the Press, occupy expensive offices, and have a large number of clients constantly dealing in their offices, and that they deal at the tape prices, and that the bargains so entered into are seldom undone or covered on the Stock Exchange.

The writer appends circulars, &c., issued by these to show that the salient features generally are:—That by means of the Stock Exchange prices, forwarded direct to them by the tape, they are offering to the public for easier terms for investment business (this being the only business that they have to undo on the Stock Exchange), and it is open to them as quite irresponsible to any authority, in this class of business, to charge their clients such a price as to be able to recoup themselves the commission they have paid to our brokers; extraordinarily easy terms for speculative transactions—very slight cover, very low commissions, in many cases none at all, and no contangos or carrying over commissions, and the profits paid as soon as transactions are closed. In addition to these outsiders, the so-called stock and sharebrokers—numbering in the City of London some 30, and in the West End of London probably as many more—there are the so-called Open Stock Exchanges and Stock Exchange Agencies [a list of names here follows] and several others in the West End of London, all doing a certain amount of business, of which an infinitesimal portion only ever finds its way to the London Stock Exchange. I give you an example to test the mode of business carried on:—

A friend, a non-member of the Stock Exchange, called at one of the above open stock exchanges, he found several speculators assembled, and, as the tape from time to time recorded the prices, transactions were entered into. The manager advised my friend to buy Brighton A's, and stated that he dealt in 500,000 of stock each account; but, acting on my advice, he said he desired to risk 50s. only, and would like to buy 250*l.* Mexican Second Preference, which the manager thereupon sold him at the tape price, and he deposited his 50s., receiving a contract. The same system may be carried on in all the outsiders' offices to a greater or less extent. . . . I believe it could be proved by anyone who cares to expend a little time and money that the great majority of the offices of the outside brokers subscribing to the Stock Exchange tape are gambling houses pure and simple, conducted upon the lines of the (now abolished) horse-racing betting agencies, and that they take cover from and open transactions with anyone, and with youths, also without enquiry and under any name that is given them. You may here remark, as many have done to me, that this state of things will cure itself. My answer is, No! because the Government do not interfere, and you, the body, having ample power, do not interfere, and the dealings being essentially gambling transactions, the profits of the public, when any, are not protected by the law, but as a matter of practice, so far as one can hear, all sums are paid and paid punctually. I would respectfully submit to the committee that at all times it has rightly been the desire of the governing body of the Stock Exchange to prevent illegitimate speculation and gambling, and for the furtherance of this object most stringent rules have been from time to time enacted, and yet by the means of the tape at the present moment this wise course of action is entirely nullified, and a most vicious course of gambling is fostered that might easily spread to the great majority of clerks employed throughout the kingdom, more especially so in the City of London.

The remedies proposed are exceedingly simple, and seem likely to prove efficient. The writer says:—1. The first step to be taken (presuming that the Exchange Telegraph Company are admitted to the Stock Exchange on sufferance by the Committee), is for the Committee to allow the tape to be sent to the offices of members of the Stock Exchange only.—2. Allowing the tape, on the application of parties requiring it, to be sent direct to Messrs. Rothschild and Co., the old-established City firms of good repute, whose members should require such knowledge, to banks, and first-class and old-established newspapers; excluding clubs, because all members of the high-class clubs, if wanting to deal on the Stock Exchange, can have no difficulty in dealing through a broker, and it is from the members of second-rate and discredited clubs that the outside brokers get a large measure of support.—3. To publish, as an advertisement, daily in the London papers, and once a week in some of the chief provincial newspapers, a short advertisement, signed by Mr. Levien for the Committee of the Stock Exchange, and giving the names of the advertising stock and share brokers, stating that they are not members of the Stock Exchange, or a paragraph or advertisement signed in the same way, stating that members of the Stock Exchange, London, are not allowed to advertise in the Press, or address circulars to the public.

It is correctly explained by the writer of the circular, that in the early infancy of advertising by stock and share brokers, it should be remembered that the outsider used to obtain a list of various shareholders in the United Kingdom by availing himself of the Act of Parliament, and paying for and obtaining direct from the company's offices the names and addresses of their shareholders: this process was both tedious and costly, but now, owing to the demand, greater and cheaper facilities are offered to the circularising broker by an agency firm collecting the addresses and supplying at a fixed rate per 1000 envelopes addressed to every shareholder in England, Scotland, or Wales, such addresses being guaranteed correct, and compiled to a very recent date, and as each fresh company is floated the names of the shareholders are obtained and added to the List. The writer continues:—It is well known that the outside brokers largely avail themselves of this source, as well as of older and well-known lists of shareholders, especially mining, and that thousands and thousands of circulars from stock and share brokers are sent daily to the investing and speculative public in the United Kingdom, and I venture to assert, in numberless instances acted upon, and the sender dealt with, in the full belief that he is a member of the Stock Exchange, London, and by these means the Stock Exchange and its members are brought into ill repute with a large portion of the public, and all Stock Exchange business suffers proportionally.

Of course the radical remedy for the evils that I have pointed out would be to abolish the tape altogether, which has been fairly tried, and although not wanting in efficiency, there is, as far as I can ascertain, a strong opinion in the House that the tape is on the whole detrimental to the true interests of the Stock Exchange. In conclusion, allow me respectfully to remind you that another great institution of a very kindred nature to our own has been injured (I allude to Lloyd's) by allowing outsiders, marine insurance companies, and others, to reap all the advantages of membership by the payment of a small subscription only. The London Stock Exchange has entered on the same ominous path; it allows individuals, not members, to possess themselves of many of its advantages without the accompanying safeguards, responsibilities, and expenses accompanying membership.

HUBBARD'S NEWSPAPER AND BANK DIRECTORY OF THE WORLD.—The total unreliability and utter worthlessness of the directory bearing this title was pointed out in the *Mining Journal* when the two first volumes were received some nine months since, and we then suggested that the crass ignorance of Mr. H. P. Hubbard, the editor and publisher, might be accepted in extenuation of what would otherwise appear to be almost criminal carelessness; but the third volume just issued being in every respect as erroneous and worthless as its predecessors, Mr. Hubbard can scarcely continue to claim ignorance as an excuse, and it is surprising that such a firm as Messrs. Trübner and Co, of Ludgate Hill—who must personally know the misleading inaccuracy of the book—should still permit the name of their firm to appear on the title-page. With regard to London papers Mr. Hubbard more than once uses six figures to represent the circulation of papers where four would be more correct, and the first of these a very small one; and in other cases uses five figures where three would give a nearer approach to truth. It is true that by way of compensation he sometimes represents the circulation of a paper by four figures instead of five; but this of course renders the work more useless as a guide than if the figures were merely incorrect, but all too high or too low in about corresponding proportions. Mr. Hubbard states that a certain number of the pages in his book is printed upon paper made of old newspapers which he has received in the course of business, and one cannot help thinking that if he were to send his own directories to the mill and have them reconverted into paper that could again be printed upon, he would save his own reputation and that of his London agents, and would confer a lasting benefit upon American advertisers by preventing the risk of their referring to the volume and thus being led astray and disappointed, perhaps ruined, by following so dangerous a guide.

MEMBERS OF PARLIAMENT FOR MINING DISTRICTS.—Theoretically, much may be said in favour of representation of classes in Parliament, but, practically, there is nothing gained by having miners, cobblers, journeymen tailors, and the like as legislators. On Saturday a communication was received at Camborne and Redruth from a trustworthy source, stating that there was reason to believe Mr. Pelham, the Commissioner who sat at Bodmin on Thursday, contemplated advising his brother Commissioners to alter the Helston and Truro divisions, so arranging as to give Camborne and Redruth a member as a mining district, and throwing Truro and Helston together. The intelligence became known to miners of the various mines, and, when the object of the proposers at Bodmin was seen, expressions of dissent at the idea were general. It is contended that Cornwall is purely and simply a mining county; that all Cornish members should have mining interests at heart; that the present boundaries of West Cornwall are geographically as accurate as is possible, and that the suggestions at Bodmin came from two Conservatives, both resident outside the proposed mining district. A meeting was at once called, at which it was resolved—"That this meeting, having heard of the suggested alteration in the proposed new districts of Truro and Helston, so as to form Camborne and Redruth and the other adjoining parishes into a separate mining district, hereby declares its opinion that no such alteration is desirable, as they believe that the mining interests of the country will be much better attended to by the Cornish members generally than by a single representative of such interests. They, therefore, trust that the original boundaries will be sanctioned. They also protest against the claims of the proposer and seconder of the proposed alteration in the boundaries at Bodmin to represent the mining interests.

THE SALT SUPPLY OF THE WORLD. No.—I.

Salt in some form or other is, says Mr. J. J. MANLEY, M.A., in his treatise written for one of the International Health Exhibition Handbooks, so widely distributed throughout the world that hardly any region is without it, and facilities for obtaining it in greater or less abundance are within the reach of the large majority of mankind. The waters of the ocean which wash so many shores can easily be made to yield it, and masses of rock salt, more or less associated with brine springs, yield an enormous and practically inexhaustible supply; while inland salt lakes and various soils largely admixed with salt also contribute their quota. In a word, as an old writer puts it, "salt is dispersed over all Nature; it is treasured up in the bowels of the earth, it impregnates the ocean, it descends in rains, it fertilises the soil, it arises in vegetables and from them is conveyed to animals, it is friendly and beneficent to all creatures endowed with life, and may well be esteemed the universal condiment of Nature;" and as Dean Buckland, in his Bridgewater Treatise, speaking of rock salt as the chief source of supply, says—"Had not the beneficent providence of the Creator laid up these stores of salt within the bowels of the earth the distance of inland countries from the sea would have rendered this article of prime and daily necessity unattainable to a large portion of mankind; but under the existing dispensation the presence of mineral salt in strata, which are dispersed generally over the interior of our continents and large islands, is a source of health and daily enjoyment to the inhabitants of almost every region of the earth."

Apart from other sources as rock salt directly or indirectly, through the connection between it and brine springs, yields the great bulk of the salt supply of the world, its formation at various depths below the surface of the earth is a very interesting geological question, which can hardly be passed over without some little notice. Probably at no period of the earth's existence did the formation of salt deposits proceed with the same activity as during the triassic, and it is in the new red sandstone, Bunter sandstone, or Keuper, and in the red or variegated marls of the trias that most rock salt occurs. An idea that all rock salt was referable to that epoch long prevailed amongst geologists, but it is now generally admitted that, although salt is found most abundantly amongst triassic rocks, and becomes rarer as we descend into the earlier strata, it occurs in all the so-called sedimentary rocks. The oldest deposit of rock salt known to exist, whose geological age may be said to be positively determined, is the Salt Range of the Punjaub, which may with tolerable certainty be referred to the permian, while the deposits lately discovered at Middlesborough-on-Tees may also probably be referred to this period, as they immediately overlie the magnesian limestone.

The stratified nature of all salt deposits with their interposed beds of clay, and the salt rock itself generally possessing a perfectly stratified structure, as well defined as any other rocks of known aqueous origin, point to the fact that rock salt must have been deposited from solution. The large quantity of selenite (crystallised hydrated calcium sulphate) so constantly found interstratified and intimately mixed with rock salt, is in itself an almost conclusive proof of its marine origin, for selenite is a hydrated mineral, losing its water at a temperature far inferior to that at which sodium chloride fuses; and crystals of selenite could hardly have found their way into the solid mass of the salt, unless they had been deposited from solution simultaneously with the salt itself. In subsequent times, should the surface of the mixed bed be denuded or dissolved by the action of water, the salt would be carried away, leaving a bed of gypsum, such as is constantly found overlying and surrounding rock salt deposits. In some districts, as those of Magdeburg, Stassfurt, Vic, &c., beds of potassium and magnesium salts are found overlying the rock salt. Sea water contains similar salts, which on its being slowly evaporated are deposited in the same order as and in similar forms to those found in connection with these German salt formations. Supposing the existence of a great triassic estuary or lake becoming in the lapse of ages completely dried up it is easy to imagine how the formation of these German deposits took place. Beds of salt would be formed, while the inland sea from which they were produced would become continually enriched with successive accessions of salt washed by floods from the salty soil of the surrounding country, and streams would also bring down clay and mud, so that in course of time layers of salt would be formed interspersed with beds of clay, and they might ultimately become covered up and protected by this same clay deposit. It is remarkable how frequently erupted rocks and hot springs are found in the neighbourhood of salt deposits; but this need not be taken as pointing to a volcanic origin for the salt itself. It is easy to understand how depressions and elevations produced in the earth's crust by disturbances due to volcanic phenomena would tend to the formation of estuaries and inland seas favourable to the production of salt; and many such disturbances and eruptions probably occurred during the time when the ocean bed was being raised and became dry land. Further it is to be noted that most trappean rocks are rich in iron, often ferric sulphide, whilst they are easily disintegrated by the combined influences of moisture and atmospheric oxidation. Salt itself assists in promoting such decompositions, so that islands or cliffs of trap on exposure would tend to crumble down and decompose, and under the action of the briny waves of such a sea some of the iron present might temporarily dissolve as ferrous sulphate, accounting for the frequent red colour of rock salt. Any sulphur combined with the iron would be oxidised to sulphuric acid, and go to augment the gypsum derived from the sea water by combining with lime from the surrounding strata, while the crumbled trap subsiding as clay, and becoming interstatified with gypsum, would wrap up the salt in a protective covering, and preserve it from re-solution.

Another noticeable and not easily accounted for feature in the geology of rock salt is its frequent association with bitumen and petroleum, which are found with salt in the oil formations of Pennsylvania and elsewhere. Bastennes where bitumen was long worked is close to the salt deposits of Dax, at the foot of the Pyrenees; and petroleum floats in small quantity on the surface of a spring near Orthez, and has been found in a boring in the neighbourhood of Salies, in the same district. Petroleum and bitumen also occur not far from Volterra, in Tuscany, where the largest rock salt works of Italy exist, and near to which are Count Larderel's celebrated boracic acid springs, and they are worked in some quantities in Wallachia, where also much rock salt is found. Petroleum has lately been discovered in Hanover, not far from the German salt deposits already mentioned. Bitumen colours the lowest beds of the rock salt mines of Nancy. It is found in and around the Dead Sea in numerous places, while both bitumen and petroleum occur abundantly at Baku, on the Caspian, near some large salt deposits, both old and recent. A good deal of organic matter, both vegetable and animal, exists in the sea, and as its waters become concentrated such organic matter would concentrate with them. Such facts testify strongly to the theory that rock salt is a true sedimentary rock, and that it probably owes its origin to the slow evaporation, in the course of enormous lapses of time, of salt lakes or inland seas fed from the waters of the ocean. The sea as it now exists may owe some of its saltness to the solution of rock salt formed during previous geological periods, and subsequently depressed beneath the present ocean. Probably such cases of solidification and re-solution have been frequently repeated, but that the present known formations of rock salt owe their origin to an evaporation of salt water, such as is now going on in certain quarters of the globe, as, for instance, on the shores of the Caspian Sea, rather than to any eruptive agency, there can be hardly any room to doubt.

Taking a detailed but hasty glance at the salt supply of the world we find that Europe is well provided with deposits of rock salt and brine springs. The Carpathian district is the richest and most extensive, and it is calculated that its deposits of salt would alone be sufficient for the supply of the whole continent for several thousand years. This district may be divided into the Moldo-Wallachian, Transylvanian, Galician, and Hungarian sections. The salt mines of Wallachia are very noted, and the salt is distributed by means of the Danube and its tributaries over a very large district. The salt used is the rock salt, as is generally the case throughout the district of the Carpathians. Owing to the absence of cheap fuel and the tolerable purity of the rock salt very few attempts to manufacture white salt have been made, and millions of gallons of nearly saturated brine are allowed to run to waste. Transylvania is richer in rock salt than any other portion of Europe. It consists of a central basin—that of the Maros river—and the basins of the upper courses of the Számos and Alt rivers. The whole territory is more or less mountainous, and the deposits of rock salt are frequently found along the banks of the small rivers amongst the hills. The supply of salt is inexhaustible. The great centres of salt mining are Máros Ujvar, on the Máros river, most favourably situated for water communication, and hence the largest shipping town in the district, exporting 70 per cent. of the Transylvanian salt. The Galician district extends along the north and north-east slopes of the Carpathians, from Moldavia to Moravia. There are numerous mines and brine springs scattered at intervals along this district. The most celebrated salt mines in the world, and those longest worked, are the mines of Wieliczka and Bochnia, at the extreme west of Galicia. Together they produce annually 45,000 tons of salt. The mines at Wieliczka have been worked since the 13th century. The Hungarian salt district is very extensive, but almost wholly confined to the region of the Carpathians from the borders of Transylvania to Moravia. One of the largest tracts lies in the basin of the Számos, in the neighbourhoods of Szathmar and Szigeth, and in the neighbouring districts of Marmaros. In the localities of Soovar and Szlec, in the extreme north of Hungary, there are numerous mines. The district of the Austrian and Bavarian Alps is probably the best known salt district of Europe to ordinary travellers. The most important mines and springs lie in a comparatively small area in the upper parts of the basins of the Traun and Salza, and partially in the basin of the Inn. The most celebrated region is the Salzkammergut, lying on both sides of the River Traun, on the borders of Styria and Salzburg. The salt is chiefly manufactured. In many cases water is allowed to run into the rock salt mines, and to become saturated brine, then drained off and manufactured many miles away. The district extends into Bavaria along the valley of the Salza. The most important salt towns in the Austrian portion are Aussee, Ischl, Hallstätt, and Hallein. The Bavarian portion is very rich in salt, the chief towns being Berchtesgaden, Reichenhall, Traunstein, and Rosenheim. The last-named manufactures the salt from brine conveyed in pipes from Reichenhall. This Alpine district extends into the Tyrol. At Hall, near Innsbruck, in the Inn valley, are very extensive salt deposits and salt works, and the rocks are similar in character to those of the Salza and Traun. In Austro-Hungary the rock salt is generally retailed in lumps, but some is ground and sold in that form at the shops in towns. Its price differs in various parts of the kingdom, according to the distance from the centres of its production, varying from 1d. per lb. near the mines to 1½d. per lb. at distances from them. In both parts of the Empire the salt trade is a Government monopoly, producing in Austria a profit of 2,000,000*l.* sterling of our money, and in Hungary 1,250,000*l.* A considerable quantity of Austro-Hungarian salt is sent into Italy, where salt is dear in consequence of the duties laid upon it. In Germany there are a very large number of salt mines and brine springs extending from Segeberg, in Holstein, in the north, to Sulz, on the Neckar, in Württemberg, on the south, and from Kreuznach on the Nahe, on the west, to Halle, near Magdeburg, on the east. The district between the Elbe and Weser contains very large quantities of salt, and springs of brine are met with in great numbers from the banks of the Werra and Saale to those of the Aller. The most numerous springs, as also the rock salt deposits, lie near the various small ranges of mountains that are scattered about the district, as the Thuringer Wald, Harz Mountains, Tentoberger Wald, &c. Two localities of special importance are the district between Magdeburg and Halle, more especially in the neighbourhood of Stassfurt; and the Luneberg Heath, in Hanover, to the south of Hamburg. In both localities brine springs have long been known, and Schönebeck and Luneberg have been centres of salt manufacture for a considerable period.

The Vosges district is a very important one. Its salt meets English salt very extensively in Belgium. Great portions of East, North, and Central France are supplied from it. Until the late Franco-German war the district belonged wholly to France, but lying in the ceded district of Alsace-Lorraine (principally in Lorraine), now belongs to Germany, thus rendering Germany the possessor of some of the most extensive salt deposits in Europe. The salt is chiefly manufactured from brine springs, though a considerable quantity of rock salt is mined at Vic and at Varengeville, near Nancy.

Since France has lost the salt district of the Vosges, the long-noted one of the Jura has become of more importance. It is separated from that just mentioned by the Plateau of Langres, and lies in the basin of the Saône and Doubs. The salt springs of Salins have been noted from remote antiquity. The chief centres of manufacture are Salins, Arc, Lous le Saulnier, Montmorot, and Saulnot.

In Switzerland a small salt district lies on the right bank of the Rhone, just before the river enters the Lake of Geneva, in the Canton de Vaud. It has rock salt mines and brine springs. The chief centres are Aigle, Bex, and Roche. Rock salt was mined here 300 years ago.

Like the Carpathians, the Pyrenees are rich in rock salt deposits and brine springs. In the west district of the Pyrenees, in both France and Spain, salt appears to be most plentiful. In France the basin of the Adour is the most important district, and contains the towns of Salies de Béarn, Briscous, and Villefranche. At Salis d'Arabas, on the Garonne, near the Pyrenees, a brine spring exists, and salt is manufactured. In Spain the whole basin of the Ebro is rich in salt, especially towards the source of the river, as is indicated by the number of villages named either *sal* or *salinas*. In one small district are Salinas, Salinas d'Amana, Salinillas, and Poza de la Sal. On the banks of the Ebro are Mendavia, Valtierra, Remolinos, and Sastag. Both rock salt and brine springs are plentiful. One of the most peculiar deposits of rock salt known to exist is in this district about 45 miles north-west of Barcelona, on the banks of the Cardona river. This is the famous rock salt mountain of Cardona, a hill composed entirely of rock salt, which is worked in open quarries like stone. There are indications of salt in various other places, and indeed Spain seems richly endowed with this mineral.

Some other more or less isolated salt deposits and brine springs may also be mentioned. For instance, in France, at the foot of the Alps, at Moutiers and Castellane, are well-known brine springs from which salt is made. In Italy, at Volterra, in Tuscany, salt is manufactured; and at Lungro and Altamonte, in the mountains of Calabria, rock salt is mined. In Sicily, at Nicosia and Mussomeli, are salt deposits. At Szamobor, in Croatia, and Tuzla, in Bosnia, salt is found. In Russia, at Bachmutz, on the Donetz; Balachna, on the Volga; Staraia Russa, near Lake Ilmen; Solikamsk, on the Kama; and at Hetzkaya, salt deposits exist. At Eupatoria, in the Crimea, rock salt is found. In Prussia, at Jnowraclaw, Rawicz, Waltersdorf brine springs exist; and at Sperenberg, South of Berlin, a bed of rock salt of the enormous thickness of 2810 ft. was bored into in 1870.

Deposits of rock salt have not hitherto been discovered in the United States of America, although their presence seems to be indicated by numerous salt springs. In the Central States these springs are very common, particularly in Arkansas, Virginia, Ohio, and Kentucky, and also in Pennsylvania and New York. Throughout North America the term Lick is applied to those marshy swamps where saline springs break out, and which are frequented by deer, buffaloes, and other wild animals for the sake of the salt, whether dissolved in the water or thrown down by evaporation in the summer season so as to encrust the surface of the marsh. Cattle and wild beasts devour this incrustation greedily, and burrow in the clay impregnated with salt in order to lick the mud. The manufacture of salt from brine is carried on mainly after the method pursued in our own salt districts. The brine being mostly obtained by boring where there are indications of salt. A similar remark applies to Canada. But North America will probably look to us for its main supply of the best table salt for some years to come.

Rock salt is found in different parts of South America.

Looking further a-field we find numerous lakes of salt water in the steppes of Asiatic Russia, Lake Inder alone containing such an abundant supply of salt of the first quality that it would suffice for the consumption of all the Russias, if the difficulties attending the carriage were not almost insurmountable. China, like North America, bores for brine of which it seems to have a fair supply. In the province of Szu-Tchhouan, on the borders of Thibet, occur a number of salt wells with the remarkable accompaniment of springs of inflammable gas, so that Nature not only furnishes the brine, but also the fuel for evaporating the water and extracting the salt. There are several other wells of the same nature in the different districts of this department of Kia-Ling-Fou, and in the other neighbouring districts situated to the east of the great chain of mountains covered with perpetual snow, which traverses the eastern part of Szu-Tchhouan from south to north. But of all the countries in Asia, Persia is the most abundantly supplied. All the lakes are salt, and every considerable collection of water is impregnated with it. Salt mines also are found in different parts, and salt deserts are a striking feature of Persian scenery. There are salt mines in Morocco, but the product is of a red colour, very strong and coarse. The lakes of Barbary are almost all as salt as the sea, and in the course of the summer may dry up entirely, leaving the mineral incrusted on their beds; and near the Lake of Marks, in the Algerine territory, is a mountain composed entirely of salt. Salt water lakes abound also in Southern Africa.

PRACTICAL USE OF STEEL MINING WHEELS.

Those interested in the success of mining operations of all kinds know well that the wheels on the tubs, corves, or wagons used in the workings form an important item. Much has been said about the advantages to be derived from the adoption of steel wheels, and without doubt when they are properly made they are one of the cheapest kind of wheels that can be used. Steel wheels, of course, means those of high-class quality only, such as are made by the Sheffield process, and such wheels have been turned out successfully by more than one firm for many years past. The first cost is naturally a great consideration, particularly when prices for coal, ironstone, &c., have to be minimised. The predecessors and relatives of Messrs. HANSELL and Co. claimed to be the original makers of steel mining wheels in Sheffield, and it is understood that a little time since they had forwarded to their works some wheels of their manufacture which had been in use upwards of 14 years. They, of course, showed considerable signs of wear, but were not even then worn out, and had many years of life left in them. Such facts as these should convince the most sceptical as to the advantages which must arise from the adoption of steel wheels. These wheels in question were in use in some large collieries where thousands of others have been supplied, and it was very important that they should resist effectively the wear and tear they continually met with, for the coal in the largest of these collieries is not brought to bank in the usual way, by drawing it perpendicularly up a shaft, but the tubs or corves are drawn up a long steep incline from a sort of mountain side, and if any breakage occurred the damage would be exceedingly great The principal proprietor often expressed himself to Mr. Hansell that his wheels were the cheapest things they had in their collieries.

The saving in haulage power when steel wheels were adopted is great, as they can be made lighter; wear and tear is reduced to a minimum, and what has been said is a practical proof of their durability. Some of these patent steel wheels, which, among many other articles used in mining operations, were severely tested a short time since by being battered with a sledge-hammer when in the cold state, to practically show the resistance they would stand, and the result showed that the material was of high class. The turning taken from a casting was another proof of excellency—in fact, the scope for properly made steel castings for mining purposes is great, and it is claimed that Hansell's patent Crown design shows in a marked degree how much better steel is for resisting severe shock, break power, and general rough usage. This steel casting business is one to itself, and requires very special care. It is stated that in Sheffield alone at least 14 firms during as many years have embarked in the trade, and abandond it owing to the losses sustained, bringing thereby condemnation on the other portions of their business for which they had previously held a good name among many people.

LIGNITE DISCOVERY IN NEW JERSEY.—An important discovery of a free-burning lignite, equal to the best "braunkohle" of Germany, has recently been made near Egg Harbour City, New Jersey, in sinking clay pits near the line of the Camden and Atlantic Railroad, and less than a quarter of a mile of the depot. Mr. Charles Schnett, the superintendent of the pits, says the "coal" is found from 10 ft. to 15 ft. below the surface, a vein 2 ft. in thickness being struck. Then comes water. He is of the opinion that a larger deposit exists deeper down. An examination of the stuff shows it to be lignite, or, as it is called in Germany, Brown coal. It is simply petrified or carbonised wood, and is in a stage far advanced toward anthracite coal. It burns freely, making an intense heat. It is a singular fact that a bed of ashes covers the deposit. The natural supposition is that it is the remains of a dense cedar swamp, which at one time covered that section of New Jersey, and which through the changes of Nature became embedded in the soil long after the sea which once rolled over the southern part of the State had receded. The presence of the bed of ashes is supposed to be due to a great conflagration which may have raged at the time of the forest's destruction, and which could have been kindled by the hand of Nature through the medium of an electric bolt from the sky. A few admirably preserved oak leaves are also found in the pits. While digging one day Mr. Schnett's spade turned up two objects of much interest. One was the hip bone of some unknown animal, and the other a well-shaped earthern pot of about 4 gallons capacity. The pot was standing upright, and was filled with the same dark coloured clay which surrounded it. The vessel will be forwarded to the Academy of Natural Science, in Philadelphia. These discoveries have aroused great interest among the intelligent German population of Egg Harbour City.

GEOLOGISTS' ASSOCIATION.—At the meeting of the Association on Jan. 2 the papers read will be:—"On some Recent Views Concerning the Geology of the North-West Highlands," by the President (Dr. Henry Hicks, F.G.S.).—"Palæolithic Man of the Thames Valley in North-West Middlesex," by Mr. J. Allen Brown, F.R.G.S.

COLOURED FIRE MANUFACTURE.—The mixture of the ingredients for coloured fires is always attended with danger, and is by Act of Parliament prohibited except within factories duly licensed by the Government. The report, which has just been published, of Major J. P. Cundill's enquiry into the circumstances attending the recent explosion at Kingsbridge, Devon, which resulted in the loss of one life, reveals one or two facts that should serve as a warning to any who may be inclined to manufacture explosives on unlicensed premises. It will be remembered that Mr. Balkwill, with an apprentice named Crimp, were, on Oct. 30, preparing to make red fire for the purpose of pyrotechnic display on Nov. 5. The substances being used were nitrate of strontia, chlorate of potash, shellac, charcoal, and sulphur. Mr. Balkwill having weighed out 6 ozs. of chlorate of potash, and put it into an iron mortar, Crimp was set to work to pound it, which, while he was doing, Mr. Balkwill weighed out some sulphur, and placed it on a piece of paper. It is a well-known fact that sulphur and chlorate of potash, when mixed, form a very sensitive detonating substance, readily ignited by a blow, or friction, and it is supposed that while Mr. Balkwill was away, Crimp, thinking he was doing right put the sulphur into the mortar with the chlorate of potash, and commenced pounding, the result being an explosion, from the effect of which he died in about 20 minutes. Major Cundill, after an exhaustive enquiry, comes to the conclusion that Mr. Balkwill was acting illegally in manufacturing coloured fires in his shop; that Crimp was undoubtedly acting under Mr. Balkwill's direct orders and supervision, and when so employed met his death; and that a person acting illegally is responsible for the consequences of such illegal act, and that, therefore, Mr. Balkwill is responsible for the death of Crimp. Although it may be urged that Mr. Balkwill had no evil intentions, and that, independently of the damage done to himself and his property, he deeply regrets the death of his apprentice; but even putting aside for the moment the illegality of making the red fire at all in his shop, Major Cundill does not consider that he took due precautions considering the ingredients he was dealing with.

FOREIGN MINING AND METALLURGY

Prices have been generally maintained at about the same level in the Belgian Iron Trade. They have, indeed, been maintained so well that in the Charleroi district there are rumours as to the intended stoppage of a blast-furnace and two or three rolling-mills, the proprietors of which are said to prefer to stop work rather than to reduce their prices. English casting pig has continued to be quoted at 2*l.* 2s. 6d. per ton upon the Belgian markets. Hard refining pig has made 1*l.* 19s. 6d. per ton at Charleroi; ordinary pig has made 1*l.* 15s. 2d. per ton; and mixed ditto 1*l.* 12s. per ton. No. 1 iron has made 4*l.* 8s. per ton on export account, and 4*l.* 10s. to 4*l.* 12s. per ton on home account. No. 2 has made 4*l.* 14s. to 4*l.* 16s. per ton; and No. 3 5*l.* to 5*l.* 2s. per ton. Girders have ranged from 4*l.* 14s. to 4*l.* 18s. per ton. No, 2 plates have brought 5*l.* 16s. per ton for exportation, and 5*l.* 18s. per ton on home account. No. 3 plates have made 5*l.* 14s. per ton; and No. 4, 9*l.* 18s. per ton. The eight steamers built by the John Cockerill Company between 1878 and 1883 for the conveyance of the minerals used in the company's works having yielded excellent results, the company recently put in hand two screw steamers of larger size. The first of these two vessels, the Prince Albert, has just been launched at Hoboken, in the presence of the Count and Countess of Flanders. The Prince Albert is built of Cockerill steel. The second vessel, which is now in hand, will receive the name of the Princess Josephine. The John Cockerill Company is also engaged upon a despatch boat for the Belgian Government.

The event of the last few days in the French Iron Trade has been the letting of a contract for 25,000 tons of rails by the Western of France Railway Company. This contract was given to the Denain Company at 5*l.* 2s. 6d. per ton, or about 4*l.* 15s. 2d. per ton at the works. The price of rails in France may be said, then, to be established at an average of about 4*l.* 16s. per ton, and it is little probable that we shall witness any revival for some little time to come. As regards iron, it may be regarded as supported without change, at about 5*l.* 12s. per ton. The Eastern of France Railway Company is about to give out orders for 2400 axles. French firms are under some apprehensions that Belgium will obtain a large share of these orders. The Naval Steelworks Company has obtained an order from the French Minister of Marine for about 16,000 tons of permanent way material, to be laid down in Senegal, and to be delivered in the course of the next two years. The German iron trade has been generally weak; at the same time the markets have been well maintained for certain products. Steel rails have been held with continued firmness. Orders for rails required for India will be dividedbetween the members of the International Steelworks Syndicate; the share of these orders allotted to Germany is 28 per cent. A contract for 11 goods locomotives has been taken at Cologne at 1575*l.* per engine. Another contract for goods engines has been let at Hanover at 1724*l.* per engine.

Mild and damp weather which has prevailed of late in Belgium has exerted rather an unfavourable influence upon the Belgian Coal Trade. Prices have not declined; but in view of a falling off in deliveries, they have been maintained with rather less firmness. The current coal season announces itself under favourable conditions, as stocks are small, while prices were maintained all through the summer at a relatively good level. Coking coal has fallen to so low a point that producers hope shortly to compete successfully with the Germans upon the markets of the Grand Duchy of Luxembourg. This will not be done without some serious sacrifices; at the same time, it is none the less true that an important outlet will be regained by some Belgian colliery proprietors. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending Dec. 14 was 19,713, as compared with 22,454 in the corresponding week of 1883, showing a decrease of 2741. The German coal markets have shown weakness, principally in consequence of the continued mildness of the season. Under existing circumstances, no improvement in quotations can be anticipated; on the other hand, at this season of the year German colliery proprietors are not in the habit of making concessions. The movement of coal from Ruhrort to Belgium in the first 11 months of this year amounted to 299,862 tons, as compared with 194,083 in the corresponding period of 1883.

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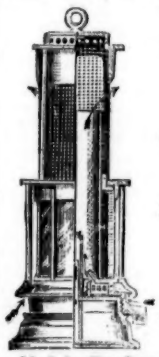

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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Company	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
12000	Bedford Unit.,* c, Tavis. (£1 liab.)	0 14 0	1⅜	1⅛ 1¼	0 1 0	0 2 0	Nov. 1884
6000	Carn Brea, c, t, Illogan†§	13 15 5	2	2 2½	52 11 8	0 10 0	Nov. 1881
4000	Craignant Bach,* l, Cardigan	5 0 0	—		0 5 0	0 5 0	Nov. 1882
11240	Devon Gt. Consols, c, a, Tavistock*†	1 0 0	2	1⅝ 1⅞	116 7 0	0 6 8	Dec. 1880
4700	Dolcoath, c, t, Camborne	10 14 10	70	68 70	40 17 9	1 1 0	Nov. 1884
6400	East Pool, t, c, Illogan	0 9 9	29	39 39½	41 3 6	0 18 0	Nov. 1884
12000	Great Holway,* l, Flintshire	5 0 0	⅜	½ ⅜	0 12 0	0 7 6	Sept. 1883
15000	Great Laxey, l, Isle of Man*†	4 0 0	10	9 10	30 8 0	0 5 0	Oct. 1884
6400	Green Hurth, l, Durham*	0 6 0	4½	4 4½	4 16 0	0 5 0	July 1884
9330	Gunnislake (Clitters), t, c	2 2 0	⅜	¼ ⅜	0 19 9	0 2 0	Mar. 1882
2800	Isle of Man, l, Isle of Man*	25 0 0	—		83 5 0	1 0 0	Sept. 1880
6000	Killifreth, t, Chacewater§	4 11 6	⅜	¼ ⅜	0 14 6	0 2 0	Nov. 1883
20000	Leadhills,* l, Lanarkshire	6 0 0	1⅜	1⅛ 1⅜	1 7 0	0 1 6	Sept. 1884
2500	Levant, c, t, St. Just	11 0 0	—		9 2 8	0 2 6	Oct. 1884
400	Lisburne,* l, Cardiganshire	18 15 0	—		615 0 0	0 10 0	June 1883
10000	Mellanear, c, Hayle*	2 6 0	1	¾ 1	2 4 3	0 0 6	Jan. 1884
9000	Minera Mining Co., l, Wrexham*	5 0 0	7	6 7	69 14 2	0 2 6	Aug. 1884
30000	Mining Co. of Ireland, cl, c, l*	7 0 0	1⅜	1 1⅜	24 0 0	0 2 6	Jan. 1880
1829	North Hendre, l, Wales	2 10 0	—		3 18 0	0 4 0	Nov. 1882
8146	Ditto	1 7 6	—		0 11 3	0 2 0	Nov. 1882
12000	Phœnix United, t, c, Linkinhorne§	6 5 3	1⅜	1½ 1⅝	17 7 6	0 1 6	Apr. 1883
12000	Roman Gravels, l, Salop*	7 10 0	3½	3 3½	9 13 6	0 2 0	Sept. 1884
6123	South Condurrow, t, c, Camborne†	7 5 7	8½	7½ 8	11 8 6	0 7 0	Aug. 1884
9000	South Darren, l, Cardigan*	1 16 3	5/16	3/16 5/16	0 4 0	0 2 0	Apr. 1880
6000	Tincroft, c, t, Pool, Illogan†§	14 7 6	6	5¾ 6¼	51 3 6	0 5 0	Dec. 1881
1500	Van, l, Llanidloes* (in liq.)	4 5 0	11/16	½ ⅝	25 13 0	0 2 6	Jan. 1883
6000	West Basset, c, Illogan†§	7 13 4	1⅜	1⅛ 1⅜	28 3 8	0 6 8	Apr. 1882
6000	West Kitty, t, St. Agnes	3 12 0	8½	8 8½	3 9 0	0 8 0	Nov. 1884
6000	Wheal Agar, t, Illogan	19 6 0	18	17½ 18	1 10 6	0 2 6	Dec. 1884
12000	Wheal Crebor, c, Tavistock	2 4 0	1	⅞ 1	1 1 3	0 2 0	Nov. 1883
1024	Wheal Eliza Consols, t, St. Austell	18 0 0	—		59 10 0	0 10 0	Aug. 1884
6000	Wheal Grenville, t, Camborne	15 0 0	6¼	5¾ 6¼	2 5 0	0 2 6	Dec. 1884
4295	Wheal Kitty, t, St. Agnes§	5 12 0	½	⅜ ½	12 18 6	0 1 6	Jan. 1881
3000	Wheal Peevor, t, Redruth§	14 9	⅜	¼ ⅜	8 13 6	0 4 0	Mar. 1881

FOREIGN DIVIDEND MINES.

Shares.	Company	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3000	Alamillos, l, Spain*†	2 0 0	1⅜	1¼ 1⅜	2 16 8	0 6 6	Sept 1884
130000	Almada and Tirito Consol., s*†	1 0 0	3/16	1/16 3/16	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	2	1½ 2	1 11 0	0 1 6	July 1884
15000	Birdseye Creek, g, California*	4 0 0	⅜	¼ ⅜	1 9 0	0 2 0	Dec. 1884
30000	Bratsberg,* c, Norway†	2 0 0	1¼	1 1¼	0 4 4½	0 1 2¼	Mar. 1884
30000	California,* g, Colorado	1 0 0	¼	⅛ ¼	0 2 0	0 1 0	Aug. 1883
20000	Cape Copper Mining,*† South Africa	8 0 0	40	39 40½	59 17 6	1 0 0	Nov. 1884
65000	Colorado United, s-l Colorado*†	5 0 0	2⅜	2⅛ 2⅜	0 14 6	0 1 0	May 1883
60000	Copiapo, c, Chili* (£4 shares)†	3 10 0	2⅜	1⅞ 2⅜	2 7 9	0 1 6	Dec. 1884
32200	El Callao, g, Venezuela (foreign)	40 0 0	70	65 70	36 16 0	0 16 0	Nov. 1884
70000	English & Australian,*† c, S. Aust.	2 10 0	—		3 2 9	0 1 0	Mar. 1884
2000	Eng.-Aus., g, Vict.* pref. (20000 o.)	1 0 0	—		0 3 8	0 3 8	Apr. 1882
25000	Fortuna, l, Spain*†	2 0 0	3⅛	2⅞ 3⅛	8 14 3	0 2 10	Sept. 1884
72000	Frontino & Bolivia, g, New Gran.*†	2 0 0	⅜	¼ ⅜	0 12 0	0 1 0	Dec. 1883
400000	La Plata, s-l, Leadville†	0 0	5/16	3/16 5/16	0 6 6	0 0 7½	Oct. 1882
15000	Linares, l, Spain*†	3 0 0	3⅜	2⅞ 3⅜	19 13 4	0 3 0	Sept. 1884
20000	Marbella Iron Ore,*, Spain	10 0 0	2½	2 2½	0 10 0	0 10 0	June 1882
135164	Mason & Barry* c, Portugal	10 0 0	8¼	8 8½	4 3 0	0 8 0	Oct. 1884
600000	Montana,* g., U.S.A.	2 0 0	⅜	⅜ ⅜	0 0 8	0 0 8	July 1884
125000	Oxford, g, Nova Scotia (foreign)	0 4 0	⅜	¼ ⅜	0 1 3½	0 0 1¼	Mar. 1884
80559	Quebrada Rail., Land, & Cop. Venezuel	10 0 0	3½	3 3½	6 per cent.		1882
50000	Panulcillo, c, Chili*†	4 0 0	2⅜	2⅛ 2⅜	2 0 9	0 2 0	May 1884
25000	Pitangui,* g, Brazil (in. 6000 £1 pd).	0 18 0	⅜	¼ ⅜	0 1 0	0 1 0	Sept. 1880
14000	Pontgibaud, s-l, France†	20 0 0	4½	4¼ 4¾	30 3 1	0 11 3	Dec. 1883
100000	Port Phillip, g, Clunes*† (£2 shares)	1 0 0	5/16	3/16 5/16	1 14 2	0 0 10	Feb. 1881
50000	Rara Fortuna,* s, Argent. Republic.	1 0 0	—		0 3 0	0 1 0	July 1882
54000	Richmond Consol., s, Nevada*†	5 0 0	3⅜	3⅛ 3⅜	15 1 6	0 5 0	Nov. 1884
2000	Rio Tinto,* c, Mortgage Bds., Huelva	100 0 0	100	98 100	5 per cent.		Oct. 1884
325000	Ditto, shares	10 0 0	12⅜	12⅛ 12⅜	4 13 0	0 10 0	Nov. 1884
60000	Santa Barbara,* g, Brazil	0 10 0	1⅜	1¼ 1½	0 12 9	0 1 0	May 1882
12000	Schwabs Gully, d, Kimberley foreign	10 0 0	6	5½ 6	6 10 6	0 8 0	Oct. 1884
120000	Scottish-Australian Mining Co.*†	1 0 0	2¼	2⅛ 2¼	20 p. cent.	0 2 0	Oct. 1884
80000	Ditto, New	0 10 0	1⅜	1⅛ 1⅜	20 p. cent.	0 1 0	Oct. 1884
112500	Sierra Buttes, g, California*†	2 0 0	1⅜	1⅛ 1⅜	2 7 0	0 0 6	Oct. 1884
140625	Ditto, Plumas Eureka	2 0 0	⅜	⅜ ⅜	3 3 6	0 1 6	Oct. 1884
253000	St. John del Rey*† (£5 Stock and multiple dealt in)		80	85	5 p.c. for half-year,		June 1882
160000	Tambracherry,* g, Wynaad	1 0 0	3/16	1/16 3/16	0 0 6	0 0 6	Aug. 1882
625000	Tharsis,* c, sul, Spain (587330 issued)†	2 0 0	5⅛	5 5⅛	6 18 6	0 11 0	May 1883
14000	Tolima,* g, s, Colombia (A shares)	5 0 0	6	5½ 6	5 17 4	0 5 0	Oct. 1884
6000	Ditto (B shares)	5 0 0	5	4 5	—	—	—
25000	Victoria* (London), g, Australia	1 0 0	5/16	¼ 5/16	0 13 10	0 0 8	Feb. 1881
124221	United Mexican,*†‡ s, Mexico	9 17 6	3½	3¼ 3½	0 5 0	0 2 6	Nov. 1884
100000	Victorine (Nevada, U.S.) Deb. Bds.	1 0 0	—		0 4 6	0 2 6	Nov. 1884
15000	Western Andes, s, Colombia	5 0 0	5¼	4½ 5¼	4 16 3	0 10 6	Aug. 1884
2100	W. Prussian (5500 pref. sh. £10 pd.)	10 0 0	—		4 2 0	0 8 0	Apr. 1881
54800	Yorke Pen., c, South Aust. Pref.†	1 0 0	3/16	1/16 3/16	0 3 0	0 3 0	May 1882

§ Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.	Company	Paid.	Last wk.	Clos. pr.
25000	Aberdaunant,* l, Denbigh	1 10 0	—	
12000	Anderton, t, c, l, Devonshire	1 6	¼	⅜ ¼
12000	Assheton, l, Carnarvonshire*	5 0 0	—	
3200	Blue Hills t, c, St. Agnes§	4 5 6	¼	⅜ ⅜
10000	Brada,* l, Isle of Man	1 0 0	—	
30000	British,* s-l, bl, Wrexham	1 0 0	—	
20000	British Manganese Company*	1 0 0	—	
10000	Burnhope,* l, Edmondbyers	0 5 0	2⅛	2⅛
20000	Bwlch United,* l, Cardigan	1 0 0	—	
12000	Collacombe Consols, c, bl, Lamerton	0 2 6	¼	⅛ ¼
50000	Carn Camborne,* t, c, Camborne	1 0 0	⅜	¼ ⅜
37500	Carnarvonshire Cons.,* l, Llanrwst.	2 0 0	⅜	¼ ⅜
6400	Cashwell,* l, Cumberland‡	2 19 0	1¼	1 1¼
6000	Cathedral, c, t, Gwennap	1 16 0	—	
20000	Central Foxdale,* l, Isle of Man	1 18 6	—	
300000	Clifford Amalgamated	1 0 0	1¼	1⅛ 1¼
25000	Coed-y-Fedw & Pant-y-Buarth,* l	1 0 0	¼	⅛ ¼
2450	Cook's Kitchen, t, Illogan†	37 14 9	11	10 11
50000	Creigiog,* l, bl, Denbighshire	0 17 0	¼	⅛ ¼
36400	Crook Burn,* l, Cumberland	0 17 0	—	
12000	D'Eresby,* l, bl, Llanrwst. £1 shares	0 10 0	¼	⅛ ¼
12000	Derwent,* l, Durham	4 0 0	—	
60000	Devon Friendship,* c, ars, Tavistock	1 0 0	⅛	1/16 ⅛
12000	Devon Great United* (2l. shares)	1 17 6	⅜	¼ ⅜
50000	Drakewalls,* t, c Calstock	0 15 0	3/16	1/16 3/16
50000	Dooby Peru,* bl, l, s, Cornwall	1 0 0	1⅛	1 1⅛
12000	East Blue Hills, t, St. Agnes	0 5 0	5/16	¼ ⅜
6000	East Botallack, t, St. Just	1 2 6	—	
6144	East Caradon, c, St. Cleer‡	5 2 0	¼	⅛ ¼
30000	E. Craven Moor,* l, Pateley Bridge	1 0 0	—	
15000	East Devon Cons.,* c, Buckfastleigh.	2 0 0	⅜	¼ ⅜
20000	East Long Rake,* l, Wales	1 0 0	—	
26500	East Roman Gravels,* l, Salop	1 0 0	—	
18000	East Van, l, Llanidloes*	5 0 0	—	
2048	East Wheal Lovell, t, Helston	0 3 6	⅜	¼ ⅜
100000	East Wheal Rose,* s-l, Newlyn East	1 0 0	1/16	1/16 1/16
25000	Eston,* c, Wetton	1 0 0	2⅛	1½ 1⅞
12500	Frongoch,* l, Cardgn (11000 sh. iss.)	2 0 0	⅜	¼ ⅜
12000	Gawton,* c, Tavistock	2 5 0	⅜	¼ ⅜
40000	Glasg. Car., c* [30000 sh. £1 pd., 10000 15s. pd.]		¼	⅛ ¼
30000	Gobbett,* t, Devon	1 0 0	—	
10000	Goddards,* l, s, Carnarvon	1 0 0	—	
32000	Goginan,* l, Cardiganshire	1 0 0	⅜	¼ ⅜
25000	Goodevere, t, St. Cleer	1 0 0	1⅛	1 1⅛
8400	Gorsedd and Merllyn Con., l, Flint.	2 10 0	¼	¼
6000	Great West Chiverton, l, St. Agnes.	0 6 6	⅛	⅛ ⅛
50000	Great W. Shepherds* l, Cornwall	0 0	1	⅞ 1
20000	Grogwinion, l, Cardigan*	2 0 0	—	
10000	Gwern-y-Mynydd,* s-l, Flint (pref.)	4 0 0	⅛	¼ ⅛
8400	Hardshins,* l, Westmore. (10s. sh.)	0 7 6	1	¾ 1
12000	Herodsfoot, l, near Liskeard†	1 6 0	¼	⅛ ¼
18000	Hingston Down, c, Calstock*†	0 13 0	¼	⅛ ¼
35000	Holway Consols,* l, Flintshire	1 0 0	—	
25000	Kit Hill Gt. Cons.* c, ars-m, (2l. sh.)	1 2 6	⅛	1/16 ⅛
15000	Lady Ann,* s-l, Llanarmon	1 0 0	—	
15000	Llandegla,* l, Wales	1 0 0	—	
5120	Lovell, t, Wendron	1 8 0	⅜	¼ ⅜
9000	Marke Valley, c, Linkinhorne‡	7 15 6	⅛	⅜ ⅛
3000	Mona,* c, Anglesea	5 0 0	—	
20000	Mona Consols,* c, Anglesea	1 0 0	—	
20000	Mostyn Consols,* s-l, Flint	1 0 0	—	
12000	Morfa Du, z, g, s, Anglesea*	1 0 0	—	
80000	Mounts Bay,* c, t, Breage	1 0 0	3s.	2s. 3s.
6144	Mount Carbis, t, c, Redruth	1 19 0	2⅛	1⅞ 2⅛
12000	New Caradon, c, St. Cleer	0 6 0	¼	⅛ ¼
2400	New Cook's Kitchen, t, Illogan	10 5 6	⅜	¾ 1
8000	New Dolcoath, t, c, Camborne*	3 0 0	—	
10000	New Holmbush,* t, c, Callington	4 0 0	—	
6000	New Kitty, t, St. Agnes	1 11 0	1⅜	1⅛ 1⅜
25000	New Langford, s, c, Callington	0 2 6	¼	⅛ ¼
15000	New Redmoor,* t, var, Callington	1 5 0	—	
17500	New Terras,* t, St. Austell	2 0 0	2½	2 2½
3500	New Tincroft,* t, Lelant	6 0 0	—	
12000	New Trumpet,* t, Wendron	1 0 0	1	¾ 1
30000	New Van Cons. & Glyn,* l	7 0 0	—	
12000	New West Caradon, c, Liskeard	0 7 6	3s.	2s. 3s.
3000	New Wheal Peevor, t, Redruth	0 10 0	—	
12000	North Blue Hills, t, St. Agnes	0 2 6	2s.	1s. 2s.
5328	North Busy, t, c, Scorrier‡	2 4 8	2s.	1s. 2s.
10000	N. D'Eresby Mount.,* l, bl, Carnarv.	1 0 0	—	
25000	North Goginan,* l, Cardiganshire	1 0 0	—	
6400	North Green Hurth,*	1 0 0	⅛	¼ ⅛
25000	North Grogwinion,* s-l, Cardigshr.	1 0 0	⅜	¼ ⅜

NON-DIVIDEND MINES—continued.

Shares.	Company	Paid.	Last wk.	Clos. pr.
2000	North Herodsfoot, l, Liskeard	0 13 6	—	
2000	North Levant, t, c, St. Just	14 3 6	—	
50000	North Molton,* c, m, i, Devon	1 0 0	—	
1936	North Treskerby, c, St. Agnes	1 0 0	—	
8000	Northern,* l, Durham	8 17 10	—	
40000	Okel Tor,* t, c, a, Calstock	1 0 0	—	
80000	Old Shepherds* s-l, Cornwall	1 0 0	⅛	1/16
60000	Owen Vean & Tregur.,* t, c, Marazion	1 0 0	⅛	
45000	Parys Corporation,* c, Anglesea	1 0 0	1s.	6d.
7500	Pateley Bridge, l, Yorkshire	1 0 0	—	
6000	Pedn-an-drea, t, Redruth	4 10 0	1⅜	1
6000	Pennant, l, bar, North Wales*	5 0 0	—	
20000	Penegarreg, l, Carmarthenshire	1 0 0	—	
15000	Pen-yr-Orsedd,* l, Flintshire	1 0 0	—	
10000	Polberro, t, St. Agnes	0 3 0	2⅛	2
12000	Polcrebo, t, Crowan	0 11 3	2	1¾
10000	Port Nigel Syn.,* s-l, Carnar. (4000 is.)	0 15 0	—	
18000	Pr. Patrick,* s-l, (als. 12000 pf. 10 p.c)	1 0 0	—	
12000	Prince of Wales, s, c, t, Calstock	1 2 0	3/16	3/16
36000	Russell United,* c, Tavistock	0 9 0	—	
30000	Silver Hill,* Callington	1 0 0	—	
50000	Sinclair,* l, bl, Whitford	1 0 0	⅛	
40000	Sortridge,* c, Horrabridge	1 0 0	—	¼
50000	South Caradon,* c, St. Cleer†	1 0 0	¼	⅛
6000	South Carbis, t, c, Redruth	0 10 0	1⅛	1⅛
42000	So. Devon Unit.,* c, Buckfastleigh.	1 0 0	⅜	¼
5000	South Dolcoath, c, t, Illogan	0 19 0	⅜	¼
6000	South Kitty, t, St. Agnes	0 10 0	⅜	¼
6000	South Penstruthal, t, c, Gwennap	4 2 6	⅜	⅜
30000	So. Phœnix & Caradon,* t, c, Linkinhn.	1 0 0	⅜	⅜
6000	South Tolcarne, t, c, Camborne	5 11 6	⅛	⅛
2043	South Wheal Crofty, c, Illogan	7 4 6	3⅛	2¾
6000	South Wheal Frances, t, Illogan†	10 4 4	6	5¾
30000	Standard,* l, bl, Llanrwst	1 0 0	1½	1¼
40000	Tamar, s-l, Bearalston*	1 0 0	—	
12000	Trebartha Lemarne, t, Northill	0 6 3	—	
6000	Tregembo, t, c, Cornwall	4 0 0	—	
50000	Tregontrees and Old Polgooth Con.	1 0 0	⅛	
100000	Treasvean,* t, c, Gwennap	1 0 0	⅜	⅜
8000	Trevaunance, t, St. Agnes	0 10 0	2¼	2⅛
1000	Vaughan,* l, Cardiganshire	10 0 0	—	
50000	Weardale,* l, Northumber. (4l. share)	1 5 0	1¼	1⅛
12000	West Assheton, l, Carnarvon	1 0 0	—	
12000	West Caradon, c, St. Cleer	0 10 0	⅛	1/16
30000	West Cornwall,* t, Cornwall	1 0 0	1⅛	1
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	—	
12000	West Crebor, c, Tavistock	0 13 0	3s.	1s.
10240	West Devon Consols, c, Calstock	1 2 0	¼	⅛
10000	West Godolphin, t, c, Breage	1 3 6	1	⅛
12000	West Gonamena, c. St. Cleer	0 1 0	—	⅜
15000	West Holway,* l, Flintshire	1 0 0	3/16	⅛
20000	West Lisburne,* l, Cardigan	1 0 0	—	
3000	West Mary Ann, l, Menheniot	1 18 0	¼	⅛
20000	W. Pateley Bridge, l, Yorkshire	1 0 0	—	
12000	West Phœnix, t, Linkinhorne	1 6 3	¼	⅛
6000	West Polbreen, t, c, St. Agnes	0 10 0	¼	⅛
5190	West Poldice, St. Day‡	7 10 6	¼	⅛
6144	West Wheal Frances, t, Illogan‡	14 10 1	7½	7¼
3000	West Wheal Peevor, t, Redruth	4 18 6	⅜	¼
2400	West Wheal Seton, c, Camborne‡§	20 10 0	3	2
6144	Wheal Basset, c, Illogan‡	9 7 6	2⅛	2¼
4000	Wheal Benny, t, c, Latchley	5 0 0	6¼	5⅞
3000	Wheal Boys, t, Redruth	1 3 6	—	
50000	Wheal Castle,* c, t, St. Just	1 0 0	1	¾
12000	Wheal Coates, t, St. Agnes	0 12 0	3/16	⅛
2585	W. Comf., & No. Tres., t, c, Gwennap	2 2 0	¼	⅛
50000	Wheal Elizabeth,* t, Cornwall	1 0 0	—	⅛
12288	Wheal Jane, t, Kea‡	3 11 0	3s.	2s.
12000	Wheal Jewell, c, St. Hilary	1 0 6	¼	⅛
12000	Wheal Lusky, t, Callington	0 3 9	3/16	⅛
12000	Wheal Metal and Flow, t, Breage	0 2 6	⅛	⅛
2000	Wheal Owles, t, St. Just‡	7 3 0	—	
30000	Wh. Silver & Lanteglos,* s-l, Camelfd.	1 0 0	⅛	⅛
6000	Wheal Sisters, t, Lelant	4 2 6	—	
4096	Wheal Uny, t, c, Redruth	21 7 0	¼	⅛
21866	Wye Valley, l, Montgomery.*	1 0 0	—	
60000	Yeoland Consols,* t, Devonshire	0 12 6	—	
4000	Ystwith,* l, Cardigan	1 0 0	—	

bl, blende; c, copper; g, gold; l, lead; s, silver; sl, slate, s-l, silver-lead; t, tin; z, zinc; i, iron; a, arsenic; d, diamond.
*Limited Liability Companies; † quoted on the Stock Exchange.
‡ I have paid dividends.

NON-DIVIDEND FOREIGN MINES; FOREIGN AND MISCELLANEOUS STOCKS; TRAMWAYS; INSURANCE COMPANIES; GAS, IRON AND COAL, FINANCIAL AND INVESTMENT COMPANIES, &c.

NON-DIVIDEND FOREIGN MINES.

Shares.	Company	Paid.	Clos. pr.
150000	Akankoo,* g, Gold Cst. (100000 iss.)	1 0 0	⅛ ¼
34829	Anglo-African,* d, Kimberley,†	10 0 0	1⅛ 2⅛
12000	Arendal, c, Norway	4 0 0	
20000	Asia Minor,* s-l, Lidjessy, Sivas	0 15 0	1/16 3/16
1200000	Balkis,* g, Transvaal	1 0 0	⅛ 3/16
28000	Beit,* c, Lake Sup., (220 0 £4 paid)	5 0 0	
200000	British Australian,* g, N. So. Wales	1 0 0	
10000	Buena Ventura,* l, Spain (fy. pd)	2 0 0	
180000	Callao Bis,* g, Venezuela	1 0 0	¼ ⅜
112500	Canadian, c, sul,* Canada†	4 0 0	3/16 5/16
500000	Chile,* g, Venezuela	1 0 0	⅛ 3/16
125000	Chontales, g, s, Nicar.*† (108749 iss)	1 0 0	1/16 ⅛
75000	Colombian Hydraulic, g, Colombia	1 0 0	⅜ ⅝
200000	Devala Moyar,* g, Wynaad†	1 0 0	⅛ ¼
75000	Devala Provident,* g, Wynaad†	0 10 0	
25000	Don Pedro North del Rey*	1 0 0	¼ ⅜
214000	Eberhardt, s, Nevada*†	1 0 0	⅛ ¼
65000	Eureka,* s, Nevada	1 0 0	
40000	Georgia,* g, United States	10 0 0	
65000	Gold Coast,* g, Wassau	1 0 0	
40000	Gold Hill,* g, North Carolina	1 0 0	
120000	Hoover Hill,* g, North Carolina	1 0 0	3/16 5/16
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	
560000	Indian Consolidated,* g	1 0 0	1/16 ⅛
240000	Ind. Glenrock,* g, Wynaad†	1 0 0	1/16 3/16
100000	Iron Gate* cl. chr. Hungary	1 0 0	
100000	I.X.L., g, s, California*	1 0 0	1/16 3/16
50000	Javali, g, Nicaragua*	2 0 0	
100000	Kapanga,* g, New Zealand	1 0 0	1/16
100000	Kohinoor,* s, Colorado	1 0 0	3s. 3s. 6d.
120000	Kongsberg,* s, Norway (1l.)	0 5 0	
100000	La Trinidad,* s, Sonora, Mexico	5 0 0	5¾ 6
500000	Lisbon-Berlyn,* g, South Africa	1 0 0	7/16 9/16
65000	London and California, g*†‡	2 0 0	
100000	Michipicoten,* nat. c, Quebec	1 0 0	
50000	Moselle,* l, b-l, Germany	1 0 0	
135000	Mysore,* g, India†	1 0 0	1¼ 1½
75000	New Callao,* g, Venezuela	1 0 0	⅛ ⅜
78500	New Emma,* s, Utah	10 0 0	¼ ⅜
60000	New Potosi,* g, Venezuela†	1 0 0	13/16 15/16
180000	North Mexican, s, Mexico	1 0 0	
3000	Do. debentures do.	7 0 0	11 12
100000	Nundydroog,* g, Mysore	1 0 0	⅛ ¼
50000	Olathe,* s-l, Leadville, Colorado	1 0 0	
25000	Ooregum,* g, Mysore	1 0 0	⅛ 3/16
12000	Oregon g, U.S. (4000 prf. sh.)	0 2 6	
15000	Organos,* g, Colombia	1 0 0	⅜ ⅝
20000	Ortiz,* g, Colombia	1 0 0	1¼ 1¾
75000	Oscar,* g, Norway (£1)	0 15 0	⅜ ⅞
80000	Ouro Preto* g, Brazil	5 0 0	
80000	Pestarena United, g, Italy*†	3 0 0	0 ½
80000	Pierrefitte* (20000 pref.)	1 0 0	
100000	Placerville, g, q, California	1 0 0	
40000	Ravenscliff g, N. Zind; c, S. Aust.	1 0 0	
50000	Rhodes Reef,* g, Wynaad†	1 0 0	1/16 3/16
25300	Ruby and Dunderberg, g, Nev.*†	10 0 0	⅛ ¼
250000	Sentein,* s-l, bl, Ariège, France	1 0 0	
100000	Silver Chord,* s, Colorado	1 0 0	¾ 1
250000	Silver Peak,* s, Colorado	1 0 0	⅛ ⅜
207363	So. Austral. Cop. Mines (Corp. of)	1 0 0	1/16 ⅛
100000	South-East Wynaad, g, India†	1 0 0	
100000	Spitzkop,* g, Transvaal	1 0 0	9/16 11/16
100000	Tocopilla,* c, Bolivia	0 15 0	0 ⅛
200000	Transvaal,* g South Africa	2 0 0	⅜ ⅝
50000	Virneberg, c, Rheinbreitb., Ger.*	2 0 0	
200000	Victoria,* g, Venezuela	1 0 0	1/16 3/16
20000	Wentworth,* g, Wynaad	0 16 0	⅜ ½
75000	West Callao,* g, Venezuela	1 0 0	⅜ ¾
100000	West Frontino & Boliv.,* g, Colombia	1 0 0	
80000	Wynaad Perseverance,*† g	1 0 0	
75000	Yorke Peninsula, c, So. Australia†	1 0 0	0 ⅛
60000	Yuba River,* g, hyd California	1 0 0	

FINANCIAL AND INVESTMENT.

Issue.	Shares.	Company	Pd.	Clos. pr.
49150	10	Aus. Mort. & Agency [L] Eng. issue	2	2¾ 2⅞
20000	25	Australian Agricultural	21½	128 133
100000	10	Aust. & New Zealand Mort. [L] Shs	1	1¼ 1⅜
101960	Stk	Do. 4½ per cent. Deb. Stock	100	98 100
80000	25	Aust. Mort. Land & Finance [L]	5	17 18
592000	Stk	Do., do. 4 per cent. Deb. Stock	100	100 102
8402	1	Canada Company	1	90 91
263425	10	Canada North West Land Co. [L]	5	2 2⅜
130000	1	Central Argentine Land [L]	1	2 2¼
77000	5	Colon. Inv. & Ag. of N. Zealand [L]	1	1 1¼
1202456	Stk	Foreign & Col. Gov. Trust [L] Pref.	100	116 119
1106756	Stk	Do. Deferred	100	117 120
200010	6	General Credit and Discount [L]	3½	2⅞ 3⅛
25000	10	Land Corporation of Canada [L]	3	1 1⅛
100000	½	London & S. African Explor. [L]	½	6¼ 6⅝
36036	50	London Financial Association [L]	42½	1 2
45000	10	Manitoba Mort. & Invest. [L]	1	⅜ ⅞
100000	10	Queensland Invest. & Land Mort.	2	3¼ 3⅜
400000	Stk	Scottish Australian Invest. [L]	100	225 235
200000	Stk	Do. 5 p. c. Guaranteed Pref.	100	115 120
200000	Stk	Do. 6 per cent. do.	100	134 139
100000	10	S. Aust. Land Mort. & Agency [L]	2	2¾ 3

INSURANCE COMPANIES.

Issue.	Shares.	Company	Pd.	Clos. pr.
50000	100	Alliance British and Foreign	11	37½ 38½
10000	100	Ditto, Marine	20	22 24
50000	20	British and Foreign Marine [L]	4	22 23
550000	50	Commercial Union	5	15½ 16½
50000	50	Eagle	5	6¼ 6¾
5000	10	Globe Marine [L]	2	¾ 1¼
27500	100	Imperial Life	10	22 24
13453	100	Indemnity Marine	50	14½ 15½
130000	10	Lion Fire [L]	1¼	⅜ ⅞
49826	20	L'pool & Lond. Globe (£1 annty)	2	23 24
35862	25	London	12½	51 51
40000	25	London and Lancashire Fire	2½	4 4½
50000	20	London and Provincial Marine [L]	2	3¼ 4¼
40000	25	Marine [L]	4½	26½ 27½
50000	10	Merchants' Marine [L]	2	1 1½
50000	10	Maritime [L]	2	3¼ 3½
80000	25	North British and Mercantile	6¼	26½ 27½
30000	100	Northern	10	41 43
40000	25	Ocean Marine	5	5⅛ 5⅝
—		Phœnix	—	218 223
200000	10	Queen	1	1¾ 2¼
100000	10	Railway Passengers	33s.	7 8
200000	50	Rock Life	½	6¾ 7¼
50000	10	Sea	2	—
135000	20	Lancashire	2	4¾ 5¼
4000	20	Standard Marine	4	—
10000	20	Thames and Mersey Marine [L]	2	10½ 11
40640	20	Union Marine, Liverpool [L]	3½	4½ 5
50000	20	Universal Marine [L]	5	7¼ 7¾

TELEGRAPH COMPANIES.

Shares.	Company	Pd.	Clos. pr.
Stk.	Anglo-American	100 0	34 35
10	Brazilian Submarine	10 0	11⅛ 11⅜
10	Cuba	10 0	11 11½
10	Direct Spanish	9 0	3⅜ 4
20	Direct United States Cable	20 0	10 10¼
10	Eastern	10 0	11⅝ 11⅞
10	East. Exten. Austr. and China	10 0	12⅜ 12⅝
10	German Union	10 0	9⅜ 10⅜
10	Great Northern of Copenhagen	10 0	14⅜ 14⅞
25	Indo-European	25 0	32 33
10	London Platino Brazilian	10 0	3½ 4
8	Reuter's [L]	8 0	7¼ 7¾
Stk.	Submarine	100	175 180
	United Telephone [L]	5 0	11 11½

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Price.
100	Abbot, John, and Co.	75 0	44¼ 44½
100	Ashbury Co. [L] (new)	90 0	30 31
3	Bagnall, John, and Sons [L]	3 0	
10	Bonhar Coal Co. [L]	10 0	
10	Bilbao River & Cantabrian R. Co.	10 0	6¾ 7¼
20	Bolckow, Vaughan, & Co. [L] A	12 0	8½ 9½
50	Brown, Bailey, and Dixon [L]	40 0	
100	Brown, John, and Co. [L]	75	63 66
100	Cammell and Co. [L]	80 0	76 78½
20	Cannock & Huntington Coal [L]	10 6	10½ 10 dis
10	Central Swedish Iron & Stl. [L]	10 0	
50	Charlton Iron Co. [L]	50 0	
10	Chillington Iron Co. [L]	10 0	¼ ¾
10	Consett Iron Co. [L]	7 10	17 19
1	Consett Spanish Ore [L]	1	3⅜ 4¼
20	Darlington Iron Co. [L]	18 10	1 1/16 1 3/16
23	Ebbw Vale Co. [L]	20	4¾ 5¼
5	English Crown Spelter [L]	5 0	2 3
8	Genl. Mining Ass. [L] (ful. pd.)	8 0	5¾ 6¼
50	Knowles, Andrew, and Co. [L]	5 0	6½ 7½
20	Llynvi and Tondu [L]	20 0	2⅛ 2⅞
10	Lydney & Wigpool Iron Ore [L]	9 12	½ 1
10	Midland Iron Co. [L]	5 0	
10	Monkland Iron & Coal Co. [L]	10 0	2½ 3
4	Mwyndy Iron Ore [L]	3 15	½ ¾
62½	Nant-y-Glo & Blaina (8 p.c. prf.)	62 10	44 47
3	Nerbudda Coal and Iron [L]	2½	1¾ 2
10	Newport Abercarn Coal Co. [L]	10 0	9 10
35	Palmer's Shipbldg. & Iron [L]	35 0	24¼ 24¾
100	Parkgate Iron Co. [L]	65 0	66½ 67
20	Patent Nut and Bolt [L]	14 0	27½ 28½
50	Pearson and Knowles, B.	50 0	25 30
20	Pelsall Coal and Iron [L]	20 0	9½ 10½
5	Rhymney Iron Co. [L]	5 0	1 1¼
10	Sandwell Park Colliery Co. [L]	10 0	
100	Shotts Iron Co. [L]	130 0	35 40
25	Sheepbridge Iron and Coal [L]	22 0	7 7½
50	Silkstone & Dodw. Cl. & Iron [L]	45 0	
15000	Somorrostro Iron Co. [L]	5 0	12 15
100	Staveley Iron and Coal Co. [L]	60 0	59 59½
100	Ditto ditto B.	10 0	10½ 10⅞
5	Teesside Iron & Engine Works	5 0	⅜ ⅝
50	Tredegar Iron and Coal, A [L]	36 0	19½ 20½
25	Ditto ditto B.	25 0	17 18
10	Vancouver Coal [L]	8 0	4¼ 5¼
25	W. Cumberland Iron & Steel [L]	22 0	3½ 4½

BANKS.

Issue.	Shares.	Company	Pd.	Clos. pr.
100000	10	Agra [L]	all	9½ 10½
80000	20	Anglo-Egyptian Banking [L]	all	15½ 16½
40000	40	Bank of Australasia	all	87 89
12500	20	Bank of British Columbia	all	22 23
20000	50	Bank of British North America	all	55 57
12000	25	Bank of Egypt	all	24 26
[illegible]	20	Bank of New South Wales	all	63 65
100000	10	Bank of New Zealand	all	25 26
32000	25	Bank of South Australia	all	40 42
20000	50	Bank of Victoria	25	34 36
40000	20	Chartrd. of Ind., Aust., & China	all	20 21
30000	25	Ch. Merc. of Ind., Lond., China	all	18½ 19½
20000	100	Colonial	30	39 41
60000	20	English Bk. of Rio de Janeiro [L]	10	11 11½
60000	25	London and River Plate [L]	10	14½ 15½
60000	7	London and San Francisco [L]	all	5 6
50000	20	London Chartered of Australia	all	19½ 20½
100000	10	National Bank of N. Zealand [L]	3½	2¾ 3¼
130000	10	Queensland National [L]	6	10½ 11½
10000	100	Stndrd. of South Africa [L]	25	34 36
60000	75	Union of Australia [L]	25	72 74

GAS COMPANIES.

Issue.	Shares.	Company	Pd.	Clos.
5000	20	Bahia [L]	all	24
510000	5	Bombay [L]	all	6⅜
10000	5	Ditto, New [L]	4	5
29700	Stk	Brentford Consolidated	100	208
14000	20	British Gaslight [L]	all	41
50000	Stk	Commercial Consolidated	100	250
20000	20	Continental Union [L] Orig.	all	30½
20000	20	Do. do. New, 1869, 1872	14	28
10000	20	Do. do. 7 per ct. Preference	all	32½
23406	10	European [L]	all	21½
94850	Stk	Gaslight and Coke, A, Ord.	100	220
254200	Stk	Do. 4 per cent. Deb. Stock	100	107
5000	10	Hong Kong and China	all	16½
2800000	Stk	Imperial Continental	100	203
12000	5	Malta & Mediterranean [L]	all	3¾
100000		Metrop. of Melbourne 6 p.c. Deb.		
25000	20	Monte Video [L]	all	16½
10000	5	Ottoman [L]	all	4¾
30000	5	Oriental [L]	all	8½
27500	20	Rio de Janeiro [L]	all	22½
500000	Stk	South Metropolitan, A	100	260
50000	Stk	Ditto, ditto. B	100	217

TRAMWAYS.

Issue.	Shares.	Company	Pd.	Clos.
40000	5	Anglo-Argentine [L]	all	5½
10000	10	Barcelona [L]	all	9½
12800	10	Belfast Street Tramways	all	11½
3012	10	Birkenhead, Ordinary	all	2½
3000	10	Ditto, 6 per cent. Preference	all	6½
49800	2	Brazilian Street Railways	all	1½
10000	10	Bristol [L]	10	8
25000	10	Bordeaux Tram & Omnibus [L]	all	8½
30050	10	Calcutta [L]	all	7
3200	10	Chester [L]	all	
51870	10	Dublin	all	9½
28583	10	Edinburgh Street Tramways	all	10½
35000	10	Glasgow Tramway & Omni. [L]	9	15½
10000	10	Hughes Loco. and Tram. works	all	
8073	10	Hull Street Tramways	all	8½
17770	6	Imperial [L]	all	1
40000	10	Liverpool Unit. Tram & Om. [L]	all	11½
[illegible]	10	London [L]	all	18
20900	10	London Street Tramways	all	18
77000	10	North Metropolitan	all	18½
7935	10	Nottingham and District [L]	all	9
24500	10	Provincial [L]	all	7½
8000	10	Sheffield	all	4½
5000	10	Southampton	all	6½
8000	10	Sunderland [L]	all	3
10000	10	Swansea [L]	all	
14212	10	Tramways of France [L]	all	3½
13817	10	Tramways of Germany [L]	all	12½
20000	5	Tramways and Gen. Works [L]	all	1
40000	5	Tramways Union [L]	all	4½
25000	10	Vale of Clyde	6	
8250	10	Wolverhampton [L]	all	6

MISCELLANEOUS.

Shares.	Company.	Paid.	Price.
10	Anglo-American Brush	8 0	1⅛
10	Ditto do.	10 0	3⅜
60	Lon. & Glas. Engin. & Iron Ship	25 0	16 19
1	Maxim-Weston Electric	1 0	½
10	Nevada Land and Cattle	2 10	2
10	Noble's Explosives [L]	10 0	18
5	Swan United Electric	3 0	⅜
12	Tel. Con. & Maintenance [L]	12 0	34½
10	United Asbestos	10 0	1⅛ 2
10	Young's Paraffin Light & M.O.	8 10	11 12

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